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Fred W. Kohlmeyer, Editor

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AGRICULTURAL HISTORY

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Agricultural History is designed as a medium for the publication of research and documents pertaining to the history of agriculture in all its phases and as a clearing-house for information of interest and value to workers in the field. Materials on the history of agriculture in all countries are included, and also materials on institutions, organizations, and sciences which have been factors in agricultural development. The Society is not responsible for the statements or opinions of contributors. Editorial communications and books for review should be sent to Fred W. Kohlmeyer, Editor, Room 4, Commerce Annex, University of Illinois, Urbana, Illinois.

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*Pigs, Politics, and Protection: The European Boycott of American Pork, 1879-1891**

JOHN L. GIGNILLIAT

In 1874 Europe suffered the first of a series of bad crops, which ended in 1879 with the worst harvest in a century.[1] The resulting shortage of food coincided with expanding agricultural production of the United States and a rapid increase in American farm exports to Europe. By 1880 agricultural exports from the United States brought an income almost double that of 1870.[2] Leading exports were wheat, hog products, and beef.[3] Only when the years of famine passed and American produce remained, did Europeans become alarmed. The United States had abundant land, labor, and capital; its farmers benefited both from mechanization and from efficient transportation. How could European farmers compete with the resulting flood of cheap food?

High protective rates on manufactured imports had prevailed in the United States since Civil War days. Almost ninety per cent of American exports by 1880 were agricultural,[4] and the refusal freely to admit manufactured articles in return caused increasing European resentment in the 1870's. In 1877 the American consul-general at Frankfort reported that "nineteen out of twenty" Germans thought a reduction in the American tariff would increase trade between the two countries, and he suggested "concessions to German feeling."[5] Probably a more typical American sentiment was that expressed in 1879 by John A. Kasson, minister to Austria. "It is our good fortune," he wrote, "to produce and export leading staples which Europe must have to sustain her own industries; and she cannot carry very far a system of taxing the raw fibers of her own prosperity, or the bread and meat on which her workmen live."[6] Kasson's words proved oversanguine. If Britain remained committed to free trade, France was slowly inching toward a protectionist policy; and in June, 1879, Bismarck secured a new protective tariff from the German Reichstag.[7]

It was against this background of economic conflict that a boycott on American pork developed in Europe. At one time or another from 1879 to 1891, American pork products, either in part or *in toto*, were excluded from Italy, Portugal, Greece, Spain, Germany, France, Austria-Hungary, Turkey, Rumania, and Denmark. Each government maintained its ban was a precaution against the introduction of disease, especially trichinosis. Outbreaks of trichinosis occurred regularly in some parts of Europe, notably Germany, where the habit of eating pork without thorough cooking made the consumer especially liable.[8]

When the pork products of the United States finally became suspect, the American government claimed they were no more infected with *trichinae* than those of any other nation; but it lacked any system of micro-

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* This paper was read before a joint meeting of the Agricultural History Society and the American Historical Association in Chicago, December, 1959; it won the Edwards Memorial Award for the best paper submitted in 1959 by a graduate student.

[1] William Trimble, "Historical Aspects of the Surplus Food Production of the United States, 1862-1902," *Annual Report of the American Historical Association for the Year 1918* (Washington, 1921), I:229.

[2] United States Department of Agriculture (USDA), *Report of Commissioner 1883*, 328.

[3] The country exported more wheat in the nine years following 1874 than it had in the previous fifty years. *Ibid.*, 302. Between 1874 and 1880 its yearly export of hog products doubled. USDA, *Report of Secretary 1890*, 96. In 1875 refrigeration made possible trans-Atlantic shipment of beef, 60 million pounds of it going to Britain in the next two years. Trimble, "Surplus Food Production," 231.

[4] USDA, *Report of Commissioner 1881-1882*, 653.

[5] Alfred E. Lee to F. W. Seward, Nov. 26, 1877, United States, *Foreign Relations 1877-1878*, 51.

[6] John A. Kasson to Wm. M. Evarts, May 3, 1879, *Foreign Relations 1879*, 63.

[7] J. W. Headlam-Morley, *Bismarck* (London, 1933), 420. Despite the fact that American lard received a substantial duty in the list, the bill passed easily. Andrew D. White to Evarts, July 3, 1879, *Foreign Relations 1879*, 393.

[8] In 1879 Germany reported an average of 33 deaths from the disease each year in the previous three. Aaron A. Sargent to F. T. Frelinghuysen, Jan. 1, 1883, United States, *Senate Report No. 345* (48th Cong., 1st Sess. [1883-1884]), 3:110. Hereafter cited as *Senate Report 345*.

scopic inspection with which to support its claims.[9] The general fear of trichinosis was a godsend for European protectionists. Exclusion based on sanitary grounds had certain political advantages over exclusion based on open protectionism. A government keeping out cheap food would be resented by the poor; a government posing as the protector of its people's health could not be blamed. The scientific uncertainty surounding the affair enabled those either favoring or opposing exclusion to find "expert" opinion to support them.[10] European inspectors usually found American pork to be more highly infected with *trichinae* than native-grown pork. The American government doubted the reliability of European inspection. Native meat packers chose to quote the European inspectors; importers generally quoted American statistics. The sanitary facts of the situation were far less important to those on both sides than the question of protectionism.

The boycott struck an important item of export. In 1879, the year of the first embargo by a European nation, the United States exported nearly 1200 million pounds of pork products worth almost eighty million dollars and representing about ten per cent of total American exports,[11] eighty-nine per cent of which went to Europe. Britain was by far the greatest consumer, taking nearly sixty per cent of the total. Germany imported ten per cent, Belgium and the Netherlands nine, France eight, and the other European nations less than two per cent.[12] Much of the produce shipped to the Low Countries was reexported, Amsterdam and Antwerp serving merely as ports of entry.[13]

Stories about the prevalence of *trichinae* in American pork first made a general appearance in the summer of 1878. On June 8th a letter from Dr. Richard Heschl, professor of anatomy at the University of Vienna, appeared in the Vienna *Medicinische Wochenschrift*, in which he warned that as many as twenty per cent of American hams might be infected with *trichinae*. When the American consul-general in Vienna questioned the professor about his statement, he was told it was based on German studies. At the American's insistence, Dr. Heschl then examined some American pork and pronounced it sound. But the damage was done. The letter had been telegraphed to the London *Times*,[14] and shortly thereafter rumors of diseased American pork caused a panic in England. Whether as a result of the Vienna letter or not, reports of *trichinae*-infested American pork soon circulated "almost daily" in Germany.[15]

In the following winter Italy passed the first act of exclusion. A decree, on February 20, 1879, prohibited all American pork products for a reason that was to become familiar in the decade ahead. The government claimed it had "verified the arrival within the kingdom of pork infected with *trichinae spiralis* from Cincinnati and other points in the American Union."[16] Less than a month later, on March 14th, Portugal joined Italy in excluding "all the products of the flesh of swine" from the United States, "in consequence of trichinosis having manifested itself there."[17] Greece soon followed suit. In Greece the action was a formality, since almost no pork went there from any source, and the ban was revoked in 1884.[18]

Why the boycott should have begun in southern Europe remains something of a mystery. Perhaps rumors concerning unclean American meat caused genuine fear. The American minister to Greece felt that the southern Europeans were especially prone to

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[9] Lack of reliable statistics makes judgment on this point difficult. Inspection in 1893 showed only three per cent of American pork infested by *trichinae*. USDA, *Yearbook 1894*, 70. European figures, while inconclusive, suggest that the degree of infestation there was not notably different. *Senate Report 345*, 323. Americans generally cooked their pork, and reported cases of trichinosis were rare in the United States. USDA, *Yearbook 1894*, 76.

[10] Even the method by which *trichinae* are transferred to hogs (usually through eating live rats or uncooked meat scraps) was a matter of argument among scientists. United States, *Executive Document No. 9* (46th Cong., 3rd Sess. [1880]), 68—hereafter cited as *Ex. Doc. 9*; *National Livestock Journal*, June 1884, 254.

[11] USDA, *Report of Secretary 1890*, 96; 1880, 206.

[12] USDA, *Report of Commissioner 1879*, 158.

[13] John H. Stewart to John Davis, Nov. 20, 1882, *Senate Report 345*, 16.

[14] Philip Sidney Post to Seward, June 24, 1878, *Ex. Doc. 9*, 183-184.

[15] A. V. Dockery and Edgar Stanton to Seward, Aug. 20, 27, 1878, *ibid.*, 186, 187.

[16] Charles McMillan to Wm. Hunter, March 1, 1879, *ibid.*, 189.

[17] Benjamin Moran to James G. Blaine, July 25, 1881, *Foreign Relations 1881*, 977.

[18] Eugene Schuyler to Frelinghuysen, July 25, 1883, *Senate Report 345*, 171. Schuyler to Frelinghuysen, Feb. 23, 1884, *Foreign Relations 1884*, 259.

alarm over questions of sanitation because of the history of epidemics there.[19] The possibility of protectionism should not be overlooked, however. The trade in American pork, while small, was growing in both Italy and Portugal;[20] and in 1881 a Genoa import house said the prohibition probably was caused "by a few parties interested in excluding the competition of imported provision with the native produce."[21] When the Italian government discovered that the forbidden produce reached the country indirectly despite the prohibition of direct import, it extended the ban to apply to all foreign pork.[22]

Portuguese exclusion produced an immediate trichinosis scare in Spain, where an American firm had recently established an agency to develop the export trade;[23] and on February 28th of the next year, the Spanish government excluded all American pork. But Spain did not persist long in total exclusion. According to the American minister in Madrid, the resultant rise in pork prices and the protests of merchants brought the government to heel. On July 10th American pork products, except for certain categories of grease, were admitted subject to microscopic inspection.[24]

As exclusion spread through southern Europe, agitation against hog products from the United States increased in Germany. Individual states instituted systems of microscopic inspection that soon became general throughout the country.[25] Since neither native pork nor that from any other country was subject to inspection, importers dealing in American goods felt they were suffering deliberate harassment. The American consul-general at Frankfort viewed all talk of sanitary precaution as a mere excuse: "The large and growing imports of American pork and canned meats are viewed by the German dealers in German meats with extreme jealousy," he wrote, "and no pretext is unemployed for prejudicing consumers against American articles.[26] Jealousy on the part of these dealers is understandable, for the American products were about 40 per cent cheaper.[27] All this controversy finally led on June 25, 1880, to an imperial decree banning chopped pork and sausages of American origin, the government explaining that those items could not readily be examined.[28]

Although American consuls in Germany expressed their alarm, it took an English newspaper story to arouse the State Department. On February 19, 1881, the London *Times* carried an excerpt of a report to the Foreign Office from George Crump, the acting British consul in Philadelphia. This report, which received widespread publication throughout Europe, illustrates well the mixture of fact, scientific confusion, and near hysteria that complicated the entire pork controversy. Crump wrote:

> From a sanitary point of view it may not be impertinent to call your lordship's attention to the immense mortality among swine by a disease known as "hog cholera," of which 700,000 head have died this year in Illinois. Immense quantities of pork are annually shipped to the United Kingdom, and as the disease, "trichina spiralis," seems to be on the increase in this country, the subject is not unworthy of attention.

The consul then described "a case just reported from Kansas":

> Trichinae were found; worms were in his flesh by the million, being scraped and squeezed from the pores of the skin. They are felt creeping through his flesh and are literally eating up his substance. The disease is thought to have been contracted by eating sausages.

Trichinosis, Crump continued, was thought also to be conveyed by adulteration of butter with grease rendered from diseased hogs.[29]

The Crump report appeared just a few weeks before Garfield became President. The retiring Secretary of State, William M. Evarts,

[19] Schuyler to Frelinghuysen, Oct. 19, 1883, *Senate Report 345*, 173.

[20] Henry W. Diman to Seward, April 7, 1879, *Ex. Doc. 9*, 193.

[21] George P. March to Evarts, March 14, 1881, United States, *House of Representatives Document No. 209* (47th Cong., 1st Sess. [1881-1882]), 151. Hereafter cited as *House Doc. 209*.

[22] *Ibid.*, 152.

[23] Scott and Co. to Evarts, March 24, 1879, *Ex. Doc. 9*, 193.

[24] The new law also required inspection of German pork. Lucius Fairchild to Blaine, July 16, 1881, *Foreign Relations 1881*, 1059.

[25] John M. Wilson to Seward, June 3, 1879, *Ex. Doc. 9*, 200.

[26] Alfred E. Lee to Seward, March 31, 1879, *ibid.*, 192. Merchants sometimes sold American hams as native Westphalian hams in order to avoid the stringent regulations. Edward D. Smith to Seward, May 3, 1879, *ibid.*, 197.

[27] Edward D. Smith to Seward, May 3, 1879, *ibid.*, 196.

[28] Sidney Everett to Frelinghuysen, Feb. 23, 1882, *Foreign Relations 1882*, 158.

[29] London *Times*, Feb. 19, 1881, 5.

immediately wired a denial to London, for release to the press: "Published statements of mortality among American swine are false."[30] The succeeding Secretary, James G. Blaine, took an even more categorical stand. He not only denied the truth of the report, but even suggested that Crump's good faith had "been imposed upon by designing speculators in their own selfish interests."[31]. To James Russell Lowell, the American minister to St James, he wrote: "Had it been Mr. Crump's specific purpose to cause a panic among British consumers, he could hardly have framed his report more appropriately."[32]

Unwittingly or not, Crump had handed the enemies of American pork a powerful weapon. By his "singular phraseology," as Blaine complained, the consul had seemed to link trichinosis with hog cholera, which was actually "a contagious catarrhal pneumonia" entirely different from the other disease. The gruesome description of a trichinosis case — never authenticated — was stuff such as protectionists dreamed of. Blaine had legitimate grounds for complaint, but he and Evarts made a mistake when they denied the statistics of mortality from hog cholera, for the British were able to cite official figures of the state of Illinois to back Crump's allegation.[33] The Cincinnati Chamber of Commerce claimed western hogs had been "singularly free from disease of all kinds" in the past year and accused the author of the report of "mercenary motives."[34] Nevertheless, it seems probable that the statistics were substantially correct.[35] The disease was not transferable to man, and Blaine claimed that in any event diseased pork was never packed,[36] but he weakened his argument by denying too much.

The Foreign Office refused to disavow the report, but the British government, mindful of wage-earner welfare, declined to exclude a cheap food. Stories of trichinosis epidemics caused by American pork in Nottingham and Dublin were pronounced "entirely unfounded" by a government spokesman in Parliament.[37] For the British, free trade still worked too well to be abandoned; but Lowell, nevertheless, thought the situation touchy enough to suggest inspection of exports by the American government. Otherwise, he warned, "the theory of protection may be disguised as a legitimate carefulness of the public health."[38]

Secretary Blaine's concern over the Crump report was all the greater because, on the very day of the publicity in the London *Times*, the French government excluded all American pork products except lard and grease. The French could not have been influenced by the report, but they did attempt to use it for justification.[39] The French boycott came unexpectedly; there had been no stories of outbreaks of trichinosis, nor any prior warning that the government contemplated action. Because of the constant shift in cabinets during this period of the Third Republic, it is difficult to find any consistent protectionist intention in the government during the ten years in which the ban operated. It was a time of political confusion and complexity. Altogether there were nine cabinets of various shades of opinion during the period, and part of the time the Republic itself was in danger because of the Boulanger movement. It is apparent that the boycott, once established, proved almost impossible to remove, even when cabinets friendly to the United States were in power.

Responsibility for the exclusion policy rested on Pierre Tirard, Minister of Agriculture and Commerce, who secured an executive order on grounds of sanitary emergency from President Jules Grévy. In requesting the presidential decree, Tirard stated that American pork was infected with *trichinae* and must be

[30] *Ibid.*, March 9, 1881, 5.

[31] Blaine to Sir Edward Thornton, March 9, 1881, *Foreign Relations 1881*, 581.

[32] Blaine to J. R. Lowell, March 17, 1881, *ibid.*, 516.

[33] Thornton to Blaine, March 21, 1881, *ibid.*, 583.

[34] Blaine to Thornton, March 9, 1881, *ibid.*, 581.

[35] As late as 1913, over six million hogs died of the disease in one year—more than one-tenth of the total hog crop. A preventive serum was introduced the same year. USDA. *Yearbook 1922*, 216.

[36] Blaine to Lowell, March 17, 1881, *Foreign Relations 1881*, 515.

[37] Lowell to Blaine, March 9, 1881, *ibid.*, 510.

[38] Lowell to Blaine, April 9, 1881, *ibid.*, 526. Despite American failure to establish compulsory microscopic inspection until 1891, Britain never joined the ranks of excluding nations; but the bad reputation of American pork hurt exports there, and a speaker at a meeting of the American Swine Breeders' Association in 1885 reported that in a year Britain had increased her swine production 25 per cent. National Swine Breeders' Association, *Proceedings 1885* (Springfield, 1886), 67.

[39] Blaine to Edward F. Noyes, March 15, 1881, *Foreign Relations 1881*, 403.

prohibited; but he promised to try to find an alternative to exclusion, since the produce constituted "an important part of the food of the lower classes." Edward Noyes, the American minister to Paris, received the impression that the ban was a temporary measure.[40] Yet, Tirard proved particularly stubborn in his defense of his action; and by the end of the year the new American minister, Levi P. Morton, concluded that it would be impossible to get any modification as long as Tirard remained in office.[41]

Although Tirard maintained that government inspection of the produce had found *trichinae* "in great quantity,"[42] the French government never claimed that a single case of trichinosis had been traced to American pork in France. Meanwhile, the Chambers of Commerce of Le Havre, Bordeaux, and Marseilles, whose importers were hard hit by the decree, tried to marshall forces for its repeal.[43] The president of the Chamber at Bordeaux, where a direct line of steamers to New York had just been established, protested to Tirard that his action was "the result of inexact information, in any event exaggerated."[44] The American consul at Le Havre believed the government had acted on deliberate misinformation. Inspectors sent from Paris, he claimed, had instructions to find *trichinae* in at least twenty-five per cent of all American meat they examined; and he concluded that exclusion was protectionism under another name.[45]

Butchers and meat dealers, often fairly important figures in their communities, and apparently far more vocal than farmers, had long objected to American pork. As a result of their demands, a low duty was imposed on foreign pork in 1874. Nevertheless, in 1881, the year before exclusion became effective, France bought about six times more American hog products than she had in 1874—nearly 132 million pounds worth 10.5 million dollars.[46] In 1879 the Chamber of Commerce at Nantes, the center of pork packing, complained to the tariff commission: "The causes to which to attribute the present decadence of the pork industry are many, and we believe they are all founded on the competition with the pork made in the United States."[47] Sentiment on the commission and in the Chamber of Deputies at that time opposed taxing an important item of cheap food, and the new tariff of 1881 did not raise the levy on pork. The American consul at Nantes charged that Tirard, realizing protection could not be got by legislative action, then decided to achieve it on a sanitary pretext by executive decree.[48]

The charge seems plausible. In his request for exclusion Tirard misrepresented the number of European nations that had already taken such action, and he steadfastly refused to appoint a non-governmental scientific commission to study American pork.[49] Certainly the native pork packers thought he had their interests at heart. At a later time when there was talk of repealing the prohibition, the Nantes group addressed a letter of reproach to Tirard's successor, telling him the damage that would be done to native industry by repeal. The letter added, "These things were known to and appreciated by your honorable predecessor."[50] The French foreign minister, Barthelemy St. Hilaire, also hinted that there was more than sanitation at stake. He wrote Morton that high tariffs in the United States presented "very numerous difficulties" to the settlement of the pork dispute, and added: "(Tirard) would be happy, I hardly need to say, to meet in the Federal Government a disposition which would permit amelioration . . . of the commercial relation between the two countries."[51]

Secretary Blaine was in no mood to talk tariff reduction; instead, stoutly defending the good reputation of American pork, he hinted at retaliation.[52] The chances of repeal looked better under the Gambetta ministry, which

[40] Noyes to Evarts, Feb. 26, 1881, *Foreign Relations 1881*, 398.
[41] Levi P. Morton to Blaine, Nov. 7, 1881, *ibid.*, 435.
[42] Noyes to Blaine, May 27, 1881, *ibid.*, 410.
[43] Noyes to Blaine, April 8, 1881, *House Doc. 209*, 22.
[44] B. Gerrish to Hay, March 9, 1881, *ibid.*, 18.
[45] J. A. Bridgland to Hitt, June 14, 1881, *ibid.*, 32.
[46] *Senate Report 345*, 360.
[47] *Ibid.*, 35. As early as 1877, the Nantes group reported, "American bacon and lard are imported on such conditions as render competition on the part of our merchants nearly impossible." (p. 34)
[48] *Ibid.*, 38.
[49] Noyes to Evarts, Feb. 26, and to Blaine, May 27, 1881, *Foreign Relations 1881*, 395, 410.
[50] Wilson to Davis, Dec. 4, 1882, *Senate Report 345*, 39.
[51] Barthelemy St. Hilaire to Morton, Nov. 3, 1881, *Foreign Relations 1881*, 435.
[52] Blaine to Outrey, Nov. 25, 1881, *ibid.*, 444.

began in November of 1881. Morton believed Gambetta sincerely wanted repeal, but the French minister also wanted some means to reassure the public about the healthfulness of the food. He suggested American inspection of exports, a suggestion in which Morton concurred.[53] The government then introduced a bill for repeal, but fell from power before passage could be secured. Exclusion could have been repealed at any time by executive decree, the means by which it was effected, but Gambetta preferred to have the National Assembly share responsibility. After Gambetta's fall, Tirard returned to his former office, and the bill was defeated.[54]

The controversy dragged on. In November, 1883, still another cabinet having come to power, an executive order rescinded the boycott on the strength of a report by the French Academy of Medicine that American pork was as safe as any. But the Assembly, now increasingly protectionist, refused to register the decree. There now remained no question in Morton's mind about the reason for exclusion. "It is openly admitted," he wrote, "that public health has little bearing upon the subject in its present stage; it is simply now a question of protection."[55] For eight years more the situation remained essentially the same; when occasional governments wanted to revoke the decree, the Assembly prevented.[56]

French exclusion in February, 1881, brought demands for similar action in both Switzerland and Belgium. That these governments refrained from enacting exclusion measures is a further indication that the real explanation for France's action was not sanitation, but protection.[57] Austria-Hungary, however, followed France's example and on March 10th excluded all American hog products, including lard, which France still admitted. Though Baron Haymerle, the foreign minister, admitted protection was involved, the government, nevertheless, justified the executive decree on grounds of sanitation.[58] Little American pork reached the Empire, but Hungary had been accustomed to serving as the granary of Europe, and her own export trade in pork had been badly hurt by American competition. This was particularly true of lard, the export of which fell off over two-thirds in the five years before 1881.[59] The Chamber of Commerce of Budapest sounded much like its French counterpart in Nantes: "We cannot compete with the extraordinary low American prices even in the closest vicinity," it complained.[60] Despairing of repeal of an act he thought primarily motivated by desire to cast discredit on a competing produce, the American minister to Vienna, John A. Kasson, joined Lowell in London and Morton in Paris in asking for American inspection of exports.[61]

The chain of excluding nations lengthened when, in April, Turkey and Rumania prohibited American pork products. Their action had only nuisance value because direct imports from the United States were almost nonexistent. Turkey apparently caught "the contagion of porkophobia" from France,[62] but the Mohammedans of Turkey ate no pork, and the government only intermittently enforced a decree aimed at safeguarding the health of its Christian inhabitants.[63] Rumania, which also banned pork from Britain, Turkey, and Russia, almost certainly acted to safeguard her own trade with Austria-Hungary, where she sent large numbers of live pigs for packing.[64]

In Germany the exclusion of chopped pork in 1880 did not stop the import of other American pork products. In 1881 the United States sent to Germany over 131 million

[53] Morton to Blaine, Dec. 4, 1881, *ibid.*, 437.
[54] Morton to Frelinghuysen, June 27, 1882, *Foreign Relations 1882*, 155.
[55] Morton to Frelinghuysen, Dec. 26, 1883, *Foreign Relations 1884*, 129.
[56] Reid to Blaine, June 28, 1889, *Foreign Relations 1889*, 164.
[57] Both countries, like Britain, sought to encourage manufacturing and realized that cheap pork would benefit workers and help keep wages low. Belgium found additional profit in the American pork trade, in that her merchants enjoyed a considerable business as middlemen. John Wilson to Hitt, June 14, 1881, *House Doc. 209*, 92; Nicholas Fish to Blaine, July 15, 1881, *Foreign Relations 1881*, 1163.
[58] Kasson to Evarts, March 1, and Kallay to Kasson, March 29, 1881, *Foreign Relations 1881*, 37, 54.
[59] James R. Weaver to Hay, March 26, 1881, *House Doc. 209*, 72.
[60] Henry Sterne to Hay, March 24, 1881, *ibid.*, 71.
[61] Kasson to Blaine, March 12, 1881, *Foreign Relations 1881*, 43.
[62] B. O. Duncan to Payson, May 14, 1881, *House Doc. 209*, 175.
[63] G. H. Heap to Blaine, July 16, 1881, *ibid.*, 177; Lew Wallace to Frelinghuysen, June 6, 1882, *Senate Report 345*, 200.
[64] Schuyler to Blaine, Sept. 22, 1881, *Foreign Relations 1881*, 76.

pounds of pork worth over eleven million dollars—a new record.[65] But the Crump report gave native producers and dealers a new weapon, and from the winter of 1881 German newspapers carried stories alleging the uncleanness of American pork. Crump's figures of mortality from hog cholera were doubled in German accounts, and statistics from official inspection appeared to show that American pork contained eighty to one hundred per cent more *trichinae* than the native produce.[66] The effect of the press campaign is shown by the fact that imports in 1882 dropped fifty per cent.[67] Meantime, German customs officials proved particularly ingenious in devising ways to harass American food imports. Canned goods were taxed as iron wares, and sugar-cured hams covered with linen cloth were classed as "fine linens" so that a heavier duty could be levied.[68]

In Germany the opposing forces in the fight over American pork paralleled those in France. Producers and packers favored total exclusion; merchants and importers, centered at Hamburg, Bremen, and Stettin, were opposed.[69] Unlike France, Germany had definite political parties with formulated positions on the question of protection: Bismarck and the party of government favoring it, the Progressive party, among others, opposing.[70] Bismarck had a special reason to back protection of agriculture, for he looked upon the conservative land-holding classes as the best bulwark of the state against social innovation.[71]

It, therefore, came as no surprise when the Chancellor's official newspaper, the *Norddeutsche Allgemeine Zeitung*, attacked American pork produce as harmful both to health and to the economy and questioned whether the prohibition of chopped meat constituted "sufficient protection."[72] In answer, the Berlin *Tageblatt*, organ of the Progressive party, stressed the cheapness of the import and tried to dismiss talk of uncleanness: "The American speculates," it said, "but he does not adulterate."[73] The Chancellor, however, had already made up his mind; and in November, 1882, he presented to the Bundesrath, the Federal Council, an ordinance to exclude all American pork products except lard. Petitions from merchants and workers, and complaints from the Progressives protested the action as unconstitutional.[74] Eugen Richter, Progressive leader, charged that the action was a deliberate attempt to thwart the will of the more democratic Reichstag, which, he said, would never agree to exclusion. Richter showed that Bismarck's report on disease among American hogs came from an advertisement by a New York shipper anxious to throw discredit on his Chicago competitors;[75] but the Chancellor remained undisturbed and refused to debate the issue, his one comment being a scornful reference to American pork as "the poor man's *trichina*."[76]

As an argument against exclusion, the Progressives made much of the possibility of American retaliation.[77] When the German government refused President Arthur's invitation to send a committee of experts to the United States to study the hog packing industry,[78] the American minister at Berlin, Aaron A. Sargent, himself intimated the

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[65] *Senate Report 345*, 360.

[66] Letters to Hay from Edgar Stanton, Feb. 25; Potter, Feb. 26; H. Kreisman, April 28; and William C. Fox, June 17, 1881, *House Doc. 209*, 104, 105, 112, 117.

[67] *Senate Report 345*, 360. By the end of 1882 the American consul at Hamburg reported that "go where you may and converse with whom you please, you will generally find a wide-spread prejudice against this American article of consumption." J. M. Bailey to Davis, Nov. 20, 1882 (p. 104).

[68] Wolfgang Schoenle to Hay, Nov. 24, 1881; H. S. Everett to Frelinghuysen, Feb. 11, 1882, *House Doc. 209*, 119, 120.

[69] Sargent to Frelinghuysen, Nov. 6, 1882, *Foreign Relations 1882*, 327.

[70] Louis L. Snyder, "The German-American Pork Dispute, 1879-1891," *Journal of Modern History*, 17:16 (March, 1945).

[71] The American consul-general at Frankfort wrote: "It is clearly the policy of the German government, in these times of turbulent socialist agitations, to form around itself a phalanx of loyal and conservative elements. . . . The rural population of Germany is not only the most numerous, but also the most conservative element. . . ." Ferdinand Vogeler to Davis, March 3, 1883, *Senate Report 345*, 128.

[72] *Norddeutsche Allgemeine Zeitung*, March 18, 1882, quoted in M. S. Brewer to Davis, March 30, 1882, *Senate Report 345*, 97.

[73] Quoted in Sargent to Frelinghuysen, Nov. 13, 1882, *ibid.*, 101, 103.

[74] Sargent to Frelinghuysen, Dec. 11, 1882; Jan. 1, Feb. 24, 1883; W. D. Wamer to Davis, Jan. 10, 1883, *ibid.*, 106, 110, 124, 112.

[75] Sargent to Frelinghuysen, Dec. 18, 1882; Wamer to Davis, Jan. 22, 1883, *ibid.*, 109, 117.

[76] Sargent to Frelinghuysen, Jan. 13, 1883, *Foreign Relations 1883*, 328.

[77] Sargent to Frelinghuysen, Nov. 13, 1882, *Senate Report 345*, 103.

[78] Frelinghuysen to Sargent, Feb. 15, 1883, *Foreign Relations 1883*, 335.

possibility of retaliation.[79] This was no more than both Blaine and Morton had done to France at the time of her exclusion, but in Berlin it brought immediate offense. Bismarck implied that Sargent had cooperated with the government opposition in issuing his threat, called the action "interference in the internal affairs of Germany," and strongly hinted that Sargent would become *persona non grata* if he continued such activities.[80] F. T. Frelinghuysen, who had succeeded Blaine as Secretary of State, backed down in the face of this protest and cautioned Sargent that his mention of retaliation had introduced "an element which it was not intended to present."[81] In the end Bismarck had his way, for the Council approved the ordinance late in February.

After Germany no other nation banned American pork for five years. Denmark, which imported some of the produce and reshipped it, resisted until 1888, when Germany excluded Danish pork products. In an effort to recover the German trade, Denmark then prohibited American pork, becoming the last nation to do so.[82]

The United States government hesitated to take the obvious step, namely, to inspect exports. Whatever the real cause of exclusion, inspection was the only definitive answer to charges of uncleanness, and would have made it impossible to justify exclusion for sanitary reasons. Yet, at a time when most European nations assumed responsibility for policing public health, the United States held back. A bill for inspection was introduced in Congress as early as 1884,[83] but it was 1890 before a similar bill became law.

The delay shows much about American politics. Practically every American minister and many of the consuls urged official inspection as the only way to end what they considered a libel on American pork. In this demand they were supported by various farm journals[84] and by important organizations of pork producers. The National Livestock convention in 1883 urged "a rigid system of inspection of all meat products for foreign export . . . the expense . . . to be borne by the exporter."[85] Perhaps here lay the difficulty. Either because they feared the expense or because they disliked the idea of government supervision of their affairs, packers and exporters said little about inspection. They preferred to talk about retaliation.[86]

But the producers, for the most part low tariff men, were as unenthusiastic about retaliation as the packers were about inspection. Though they resented the insult to their produce, they were inclined to see the whole affair as a question of protectionism; and their solution was lowering the American tariff, not raising it in retaliation. As a speaker said at the convention of the National Swine Breeders' Association in 1885, "We may not wonder if they refuse to admit, free of duty, all we have to send them, while we place a tax of half its value on all they have to send us."[87] Senator Zebulon B. Vance of North Carolina expressed the same view when he said he saw no difference in exclusion by tariff and exclusion by boycott, "only that the one is manly and direct, whilst the other is indirect and based on false pretences."[88] The low tariff forces, however, lacked the votes to effect tariff reform.[89]

The pork question became part of a larger controversy concerning the role of the federal government in the realm of sanitation. The Department of Agriculture, which achieved cabinet rank only in 1889, showed reluctance

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[79] Sargent to Count Hatzfeldt, Feb. 23, 1883, *ibid.*, 341.

[80] Count Otto zu Stolberg-Wernigerode, *Germany and the United States of America during the Era of Bismarck* (Reading, Pa., 1937), 152-153.

[81] Frelinghuysen to Sargent, March 14, 1883, *Foreign Relations 1883*, 356. Trichinosis epidemics in Germany continued after the exclusion of American pork. Sargent to Frelinghuysen, Oct. 26, 1883, *Senate Report 345*, 161. After additional disagreements with Bismarck, Sargent resigned his post in April, 1884. Snyder, "German-American Pork Dispute," 24.

[82] R. B. Anderson to Thomas F. Bayard, Oct. 12, 1887; March 12, 1888, *Foreign Relations 1888*, Part I, 475; Part II, 486.

[83] *Senate Report 345*, 1.

[84] *American Swineherd*, April 1891, 4; *American Agriculturist*, Oct., 1890, 530; *National Livestock Journal*, Aug. 1879, 331.

[85] *Congressional Record* (48th Cong., 1st Sess. [1883-1884]), XV, 425.

[86] In 1884 the Milwaukee Merchants' Association and the Cleveland and Topeka Boards of Trade, among others, petitioned Congress for retaliation. *Ibid.*, 649, 840, 1233.

[87] National Swine Breeders' Association, *Proceedings 1885*, 41.

[88] *Senate Report* 345, Part II, 1.

[89] With one exception—Cleveland's attempt in 1887-1888—they never even came close. Louis M. Hacker and Benjamin B. Kendrick, *The United States since 1865* (New York: Appleton-Century-Crofts, 1949), 81.

to extend its authority. Dr. D. E. Salmon, chief of the Bureau of Animal Industry, demonstrated this attitude when he said in 1890, "I doubt very much if the people of this country are quite ready to have sanitary laws applied to the eradication of swine diseases."[90] There were times during the pork controversy when it seemed that even the State Department left the initiative to business groups. The suggestion that Germany send a committee to study American pork-packing apparently originated with the New York Chamber of Commerce.[91] When Germany refused, President Arthur then proceeded to institute his own board of inquiry, on which the New York Chamber and the Chicago Board of Trade had representatives.

The investigation by the Arthur committee was not the first made by the government, but it was the most intensive. After French exclusion in 1881, Secretary Blaine sent Michael Scanlan, chief of the Bureau of Statistics, on a one-man tour of the pork centers. Scanlan gave American pork a clean bill of health.[92] The Arthur committee did the same, though it did say that microscopic inspection could be performed, "if such . . . should be demanded."[93] There were those, however, who felt that the commission's report dismissed too lightly the question of disease. Dr. Frank Billings, a well-known pathologist at the University of Nebraska, wanted a full-scale attack by the government on the causes of trichinosis and hog cholera; and he soon developed a running feud with Dr. Salmon of the Bureau of Animal Industry because of the latter's unwillingness to commit the government to action.[94]

The various administrations during the period did not push hard either for retaliation or for inspection. Blaine, a confirmed high tariff man, was quicker to threaten retaliation than Frelinghuysen, who assured both France and Germany that the government had no such intention.[95] Both President Arthur and Frelinghuysen apparently hoped that congressional talk of retaliation would suffice to bring European repeal.[96] President Cleveland, anxious to lower American tariffs, contented himself with suggesting that Congress retaliate against the hog products of the excluding countries—largely a ceremonial gesture.[97] It took the election of Harrison to the presidency to bring the matter to a head. With Blaine back in the State Department and the high tariff party firmly in power, Congress was ready for retaliatory action. Convinced finally of the necessity for inspection, the Department of Agriculture under J. M. Rusk was also ready to cooperate.[98] The result was a law combining inspection with provisions for retaliation. On August 30, 1890, Harrison signed a bill that authorized microscopic inspection of pork intended for export. Another provision gave the President power "at his discretion to exclude from the United States, by proclamation, any product of any foreign state which, by unjust discrimination, prohibits the importation into such foreign state of any product of the United States."[99] When Germany protested that the inspection only certified the cleanness of the produce at the time of packing, Congress added on March 3, 1891, a requirement for inspecting hogs when slaughtered.[100]

Repeal of exclusion measures came quickly. Germany, closely followed by Denmark, repealed in September, Italy in October, France in November, and Austria-Hungary in December.[101] Spain repealed her requirement of

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[90] *Prairie Farmer*, March 15, 1890, 164.

[91] Frelinghuysen to Sargent, Feb. 16, 1883, *Senate Report 345*, 121.

[92] *House Doc. 209*, 190.

[93] *Senate Report 345*, 340.

[94] *American Agriculturist*, Jan. 1889, 33; *National Livestock Journal*, June, 1884, 253; *Western Swineherd*, Sept., 1891, 13. Billings' attacks found their way back to Germany where they proved useful to the government (M. S. Brewer to Davis, March 30, 1882, *Senate Report 345*, 97). At least two government investigators agreed there was room for improvement in the packing industry. In 1880 the assistant surgeon of the Marine Hospital Service complained of the "filthy condition" of Chicago stockyards (*Ex. Doc. 9*, 67). And Dr. H. J. Detmers, employed by the Bureau of Animal Industry to investigate hog cholera, insisted that diseased hogs were sent to market (USDA, *Report of Commissioner 1879*, 418). Frelinghuysen flatly denied the truthfulness of Detmers' report (to Morton, Dec. 29, 1883, *Senate Report 345*, 89).

[95] Morton to Frelinghuysen, Feb. 8, 1884, *Foreign Relations 1884*, 136.

[96] Snyder, "German-American Pork Dispute," 27.

[97] George Pendleton to Bayard, April 2, 1888, *Foreign Relations 1888*, 629.

[98] *American Swineherd*, April, 1891, 4.

[99] U. S. *Statutes* (51st Cong., 1st Sess. [1889-1890]), No. 5.

[100] USDA, *Report of Secretary 1891*, 108.

[101] Letters to Blaine from William W. Phelps, Sept. 3; Clark E. Carr, Sept. 8; Whitehouse, Oct. 21; Whitelaw Reid, Nov. 16; F. D. Grant, Dec. 5, 1891, *Foreign Relations 1891*, 517, 487, 727, 495, 31.

microscopic inspection the next May. The three remaining nations, Turkey, Portugal, and Rumania, followed the lead of the other powers.[102]

The Meat Inspection Act did not wholly account for the change of policy. While it removed the pretext for exclusion, it did not settle the issue of protection. The resolution of this aspect of the problem was closely linked with the McKinley tariff of 1890. The duty on sugar, which Germany was sending in increasing quantities to the United States, was removed, but possible renewal by presidential action was provided for. Bismarck was no longer chancellor, and the German government was now willing to remove the pork embargo in exchange for the assurance that the duty would not be applied to their sugar. This bargain was, therefore, made, and the American pig returned to the German Empire.[103] The French, meanwhile, angered by duties levied on French goods by the McKinley Act, first passed a high tariff on American hog products, and then revoked the exclusion.[104] Other European nations followed suit, since it no longer served any purpose for them to continue the boycott.

Secretary of Agriculture Rusk estimated that the embargo had resulted in a loss of over 260 million dollars,[105] which, based on the peak year of 1881, seems a reasonable estimate. The decline in pork exports for the next ten years varied from twenty to almost fifty per cent,[106] due to the exclusion policy and the poor markets everywhere. Several factors kept the loss from being even greater. Lard was not prohibited in either France or Germany, and in smaller quantities it continued to go there throughout the period. High prices in 1882 and several years thereafter also mitigated the effect of the boycott.[107] The end of the embargo brought an immediate increase in exports, which by 1894 equaled the previous high record. By 1895 Germany actually imported more American pork products than it had before the exclusion started, though France, because of her high tariff, consumed only half as much.[108]

The story of the American pork boycott exemplifies both economic nationalism and the American government's reluctance to assume responsibility for public health. It is interesting to note that the law of March 3, 1891, provided inspection not only for pork exports, but for all meat destined either for export or interstate commerce. Though the Department of Agriculture lacked a force adequate for inspection of interstate produce,[109] the Act, nevertheless, was an important beginning. The influence of Upton Sinclair's *The Jungle* (1906) caused a further step in the legislative process which the pork boycott had helped to initiate.

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[102] E. B. Grubb to Blaine, May 22, 1892, *Foreign Relations 1892*, 494, and USDA, *Report of Secretary 1892*, 11.

[103] Jeanette Keim, *Forty Years of German-American Relations* (Philadelphia, 1919), 73-74.

[104] Reid to Blaine, Nov. 16, 1891, *Foreign Relations 1891*, 495. The end of the boycott in France is described by Bingham Duncan, "Protectionism and Pork: Whitelaw Reid as Diplomat: 1889-1891," *Agricultural History*, XXXIII, No. 4 (Oct., 1959), 190-195.

[105] *Western Swineherd*, Dec., 1891, 7.

[106] USDA, *Report of Secretary 1891*, 320.

[107] Armour and Co. to Joseph Nimmo, Jan. 29, 1884, *Senate Report 345*, 361.

[108] USDA, *Yearbook 1922*, 277; *Yearbook 1895*, 546.

[109] USDA, *Yearbook 1894*, 67.

Charles Lewis Fleischmann: German-American Agricultural Authority[1]

Paul W. Gates

Among the many contributions of German immigrants to America, perhaps none have been better recognized and more significant than the practices and innovations they introduced into agriculture. Outstanding was their demonstration to a careless people, obsessed by a belief in the inexhaustible resources of their country, of the importance of soil conservation. German immigrants, usually knowledgeable about soil, carefully selected their land and prudently used it, even improved it by rotating their crops, cultivating grasses, liming acid soils, raising large numbers of livestock and spreading both animal and mineral fertilizers to restore and build up the essential soil elements for permanent and profitable farming. It was the Pennsylvania Germans who showed most concern not only for their soil but also for the quality of the livestock they bred and the seed they sowed. The farming practices of these people, along with excellent natural endowment, made Lancaster County in the heart of the Pennsylvania German country the richest agricultural county in the United States by the middle of the nineteenth century.[2]

Elsewhere farm practices, by contrast, had a destructive effect on the soil, depleting and diminishing its productivity and resulting in some areas eventually in farm abandonment. The lack of technical agricultural education in the United States, such as prevailed in German schools, and the widespread ignorance of the newly developing science of agriculture shocked one German immigrant to such a degree that he devoted much of his active life to ameliorating these conditions.[3]

For his efforts to improve agricultural techniques and agricultural education, Charles L. Fleischmann well deserves to be remembered among the minor but significant figures of the nineteenth century. Yet he has been quite neglected by historians of ethnic groups in America.[4]

Fleischmann was born in Amberg, Bavaria, in 1806. He attended the Gymnasium in Munich and the newly established Royal Agricultural and Technical School at Schleissheim. At this latter school which had professors of chemistry, agricultural technology, natural philosophy, veterinary medicine and natural history, and large experimental fields and a dairy, he acquired a technical education

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[1] My attention was first drawn to Fleischmann when, as a Fellow at the Huntington Library in 1956-57 I made use of a number of his rather rare works. The staffs of the Huntington Library and of the Cornell University Library have been generous in borrowing materials for this study.

[2] *Seventh Census of the United States, 1850* (Washington: Robert Armstrong, 1853), pp. 194 and elsewhere; Ralph Wood, ed., *The Pennsylvania Germans* (Princeton, New Jersey: Princeton University Press, 1942), *passim*. For a less favorable examination of the agriculture of Pennsylvania Germans see *Country Gentleman, XI* (April 11, 1958), 161.

[3] Charles L. Fleischmann, "Agricultural Development in the Old and the New World. The Progress of European, and the Retrograding Condition of American Agriculture: The Causes and Remedies," *De Bow's Review* (November, 1839), XXVII, 503.

[4] Among the 1500 or more German Americans mentioned in the index to Albert B. Faust, *The German Element in the United States* (Revised edition with much supplementary material, New York: The Steuben Society, 1927), Fleischmann's name does not appear, though five of his writings are listed in the bibliography. Emil Meynen, *Bibliography on German Settlements in Colonial America . . .* 1683-1933 (Leipzig: Otto Harrassowitz, 1937), contains no mention of Fleischmann or his works. Henry A. Pochman, *German Culture in America* (Madison, Wisconsin: University of Wisconsin Press, 1957) had no occasion to mention Fleischmann but in the Henry A. Pochmann and Arthur R. Schultz, *Bibliography of German Culture in America to 1940* (Madison, Wisconsin: University of Wisconsin Press, 1953), three of Fleischmann's publications are listed. Neither Marcus Lee Hansen, *The Atlantic Migration, 1607-1860* (Cambridge: Harvard University Press, 1945), nor Carl Wittke, *We Who Built America* (New York: Prentice Hall, Inc., 1940), mention Fleischmann though Wittke mentions Charles L. Fleischmann, the yeast man. The two works in German that provide some information on Fleischmann are: H. J. Ruetenik, *Berühmte Deutsche Vorkämpfer Für Fortschritt, Freiheit and Friede in Nord-Amerika von 1626 Bis 1898* (Cleveland: Forest City Bookbinding Co., 1899), pp. 269–270; Georg von Bosse, *Das Deutsche Element in den Vereinigten Staaten* (New York: C. Steiger & Co., 1908), pp. 246–247.

that deeply influenced his later career.[5] After serving for a time on a noble's estate in Germany where he put into practice the knowledge gained at school, he emigrated to America in 1832. A brief stay in New York was followed by employment in the erection of a brewery in Cincinnati and later by work as a railroad construction engineer. In 1835 Fleischmann accepted a position as draftsman in the Patent Office over which Henry L. Ellsworth presided.

Ellsworth and Fleischmann had much in common and admirably supplemented each other during the nine years they worked together in the Patent Office. Both came to Federal employment through their interest in machines, particularly agricultural machines; both were more concerned about agricultural problems than about the legal routine of examining claims and issuing patents for inventions. Together they were responsible for the agricultural work of the Patent Office which by the Forties had come to include the collection and dissemination of shrubs, cuttings, seeds from various parts of the world, the assembling of statistics of crops, and the writing and editing of accounts of agricultural improvements which were published in an annual volume. Among Fleischmann's contributions to this annual volume were translations of articles in European languages describing important innovations and improvements in agriculture.

In April, 1838, Fleischmann, doubtless with the approval of Ellsworth, began his campaign to convince Congress of the backwardness of American agriculture as compared with European and the need for government action to improve it. In a tightly constructed and informative memorial to Congress he described the progress agriculture had made in Europe in the previous twenty years as a result of the diffusion of scientific knowledge through the new agricultural schools, showed the advantages of, but the long time required for, a program of improving livestock by using for breeding only the best imported stock, sketched a plan for agricultural schools, on which he later elaborated, and argued for a botannic garden as a minimum concession. Such a garden "should contain all our native species of vines, grasses, and all other plants useful in medicine, or other branches of industry; and it should be the business of a *scientific agriculturist* to ascertain their productiveness, nourishing quality, nature, and manner of treatment, with a view to an extensive culture."[6]

Whatever doubts Fleischmann may have had concerning the right of Congress to create an agricultural school were dissipated in the same year by the fortuitous bequest to the United States Government by William Smithson of half a million dollars "for the diffusion of knowledge among mankind." In a second memorial, therefore, he proposed the creation of an institution in the District of Columbia which should be a "nursery of scientific agriculturists. . . ." Principal courses of instruction should be agronomy, chemistry, vegetable crops, animal husbandry, agricultural engineering, agricultural economics, veterinary science, forestry, botany, geology and mathematics. Land for use in experimental work, he maintained, should include 640 acres for cultivation, 100 acres of meadow, 80 acres for pasture, smaller tracts for vineyards, hop garden, vegetable garden, mulberry plantation, orchard and nursery and 500 acres of wood land. A beet sugar factory, a flour mill, machine shops, and buildings for professors and dormitories for students and architectural drawings for them were included. Out of his own experience Fleischmann drew up "conditions of admission" of students, a Prussian type "order of the day" which was to begin at 4:30 A.M. and provided, among other things, for pupils to be "accompanied to church by their professors" on Sunday. Salaries of the five professors were to be $1,000.[7]

The memorial caught the fancy of spokesmen for agriculture and aroused commenda-

[5] Nathan Burchard, *Address on Agriculture Delivered at the Request of the American Institute of the City of New York . . .* September 6, 1847, *Accompanied by Remarks on the Establishment of an Agricultural College and Experimental Farm . . . By Charles L. Fleischmann* (New York: W. E. Dean, 1847), p. 25.

[6] "Memorial of Charles Lewis Fleischmann on the subject of Improving the Agricultural of this Country," April 14, 1838, *House Documents*, 25 Cong., 2 Sess., April 16, 1838, vol. 10, no. 334.

[7] "Memorial of Charles Lewis Fleischmann, in relation to the Smithsonian Legacy," *House Documents*, 25 Cong., 3 Sess., Dec. 14, 1838, vol. 3, no. 70. This memorial was ordered reprinted by the House on March 5, 1840. *House Documents*, 26 Cong., 1 Sess., vol. 3, no. 128.

tion and discussion. Twice printed by order of the House of Representatives, it appeared in the *New York Herald*, the *New England Farmers*, the *Silk-Grower* and *Farmer's Manual*, and the Albany *Cultivator*. The New York State Agricultural Convention meeting in Albany in 1840 approved a petition to Congress praying for use of part of the Smithson fund for an agricultural school and the memorial became the basis of a number of plans proposed in Congress for the use of the fund.[8] A combination of Southern opposition, based on constitutional scruples, and New England fear that a government institution might hurt existing colleges, led to the abandonment of congressional efforts to carry out the Fleischmann plan and ultimately a very different kind of Smithsonian Institution was established.[9]

In a third memorial to Congress in 1838 Fleischmann described the method of making crystal sugar from beets, traced the growth of the beet sugar industry in France and Germany, and suggested the desirability of the government sending a properly qualified person abroad to investigate the industry more thoroughly with a view to introducing it into the United States. The qualifications for such an emissary as prescribed in the memorial were so drawn as to imply that Fleischmann was the best prepared person to undertake the investigation and indeed, his superior, Henry L. Ellsworth, in a covering letter to the House of Representatives clearly intimated this to be the case.[10] The memorial was favorably received in the agricultural press, which was usually ready to support proposals that might lead to the greater diversification of agriculture and the broadening of its economic base.[11] In the House the memorial was reported back from the Committee on Manufactures by old John Quincy Adams who was impressed by its merits but who maintained that the matter should be left to private initiative.[12] The Senate found the memorial sufficiently important to justify printing 5,000 extra copies.[13] Though sugar beets were subsequently to become a major crop in irrigated areas, interest in the crop evaporated at this time. Later, in the fifties agricultural authorities took up sorghum in its place as a means of freeing the country from dependence upon imported cane sugar.

After resigning from the Patent Office in 1845, as did his chief, Ellsworth, Fleischmann went to Europe with two commissions. One was from Samuel F. B. Morse, inventor of the telegraph, who was having difficulty in protecting his patent rights at home and in gaining recognition for his telegraph instrument abroad. Fleischmann was to exhibit Morse's instrument to high officials in France, Austria and Germany and to strive to secure for it both public recognition and legal rights.[14] The second commission, from the Patent Office, was to study agricultural conditions, farm machinery, and especially the European sheep and wool industry.[15] In pursuance of this second assignment Fleischmann traveled through England, France, Belgium, Germany, Austria, Hungary, Switzerland and northern Italy interviewing authorities, visiting fairs, exhibitions and technical schools, making notes, drawings and illustrations in his journal and collecting specimen articles and publications that might be useful to American farmers.

Fleischmann was impressed by the success attained by certain noble families in Prussian Silesia in breeding premium bearing, fine wooled sheep. Spanish Merinos, imported in 1801, had been crossed with native animals and by judicious selections, further crossing with Saxons, and constant attention to pastures, a breed of sheep producing wool of the highest quality had been developed. Rams of

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[8] *Silk-Grower and Farmer's Manual* (April, 1839), I, 232–236; *New England Farmer* (Jan. 2, 1839), XVII, 202–203; *Cultivator* (June, 1838; March, 1839; March, 1840), V, 73; VI, 16, 24; VII, 46.

[9] Richard William Leopold, *Robert Dale Owen* (Cambridge: Harvard University Press, 1940), pp. 219 ff.

[10] "Memorial of Charles Louis Fleischmann on the Manufacture of Beet-Sugar," *House Documents*, 25 Cong., 3 Sess., Jan. 7, 1839, vol. 3, no. 62.

[11] *New England Farmer* (Jan. 30, 1839), XVII, 233–237; *Silk-Grower and Farmer's Manual* (June, 1839), I, 270–272.

[12] *House Reports*, 25 Cong., 3 Sess., March 2, 1839, vol. 2, no. 319.

[13] *Senate Documents*, 25 Cong., no. 3, Jan. 28, 1839, vol. 3, no. 147.

[14] For reports by Fleischmann on the attention he drew to the Morse teelgraph see Samuel Irenaeus Prime, *Life of Samuel F. B. Morse* (New York: D. Appleton and Company, 1875), pp. 516–535.

[15] Fleischmann to J. M. Clayton, Secretary of State, Washington, April 24, 1849, National Archives.

these high bred strains were now bringing $1,500 to $2,000 each.[16] Fleischmann's acquaintance with the principal sheep breeders in Silesia, Hungary and Saxony was later to be most useful to American buyers looking for choice breeding stock.

The 110-page account of Fleischmann's observations on agriculture during this European trip appeared in the *Annual Report* of the Commissioner of Patents for 1847.[17] Sheep raisers were naturally interested in the detailed and technical descriptions of breeds, feed, care and housing of high quality sheep and could not but be impressed with the emphasis on care and maintenance which, Fleischmann held, was almost as important as blood lines in improving quality. American readers would realize that the infinite care given pure bred sheep in Silesia, where labor costs were low, would not be profitable in their own country, but it was important, Fleischmann thought, that they should be made aware of the high returns in abundant and fine quality wool such extra care assured. Part of Fleischmann's account of Silesian sheep raising was reproduced in the *Ohio Cultivator*, which circulated in the heart of the chief sheep raising area in America, and also in the *Wool Grower*.[18]

Fleischmann also used the medium of his report to the Patent Office to describe a number of agricultural schools he visited in Germany. He paid particular attention to their curricula, experimental work, teaching methods, the arrangements of their fields, pastures, gardens, crop rotation schemes, and breeding practices. Three full page engravings of the much sought after Infantado and Escurial sheep had, as background, views of the grounds and buildings of agricultural schools and model farms in Prussia, Würtemberg and Bavaria. Here again, as in his earlier memorial concerning the use of the Smithson Fund, Fleischmann was providing Americans with valuable information on technical schools abroad and this stimulated interest in the establishment of state agricultural colleges.

In the same year Fleischmann attended four meetings of the American Institute of the City of New York, an organization of bigwig country gentry, agricultural journalists and industrialists which ran annual fairs, met regularly to discuss problems of agriculture and listen to lectures on farm developments at home and abroad. At three of these meetings he spoke on sheep raising abroad, standards of wool and sheep breeding, and foreign agricultural schools. He had counted 62 such schools of which twelve were in Prussia, sixteen in Bavaria and nine in Austria. Much of the recent progress in agricultural improvement he attributed to these schools. Fleischmann's remarks on sheep raising and on the influence of the technical schools on German agriculture were summarized in the *Annual Report* of the American Institute and his address on agricultural colleges and experimental farms was separately published for wider distribution. The American Institute was an important instrument in the movement for state and Federal support of agricultural schools; the pages of its annual volumes in the forties and fifties reveal its long sustained interest in and efforts in behalf of such schools.[19]

Fleischmann's agricultural work in the Patent Office and his extensive reading and travels through the Ohio Valley, into the cane country of Louisiana, and in New York, Pennsylvania, Michigan and Virginia had acquainted him with the economic opportunities in farming and industry in the United States. In 1840 he became interested in Texas and submitted a memorial to the government of that state stating his intention to remove there so as to identify himself with its future growth and to contribute to it by drawing

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[16] Letter of Fleischmann, Vienna, Dec. 1, 1845, in Commissioner of Patents, *Annual Report, House Documents*, 29 Cong., 1 Sess., 1846, Vol. 5, no. 140, pp. 1017—1020.

[17] "Result of observations made during a visit to Germany in 1844-'45 by Charles L. Fleischmann, Esq., formerly draughtsman in the Patent Office, and furnished by him at the request of the Commissioner of Patents for the Agricultural Report of 1847," Commissioner of Patents, Annual Report, 1847, *House Documents*, 30 Cong., 1 Sess., vol. 6, no. 54.

[18] *Ohio Cultivator* (July 15, 1858), IV, 105; *Wool Grower* (Sept., 1849), I, 81–88. See also Commissioner of Patents, *Annual Report*, 1849, pp. 192 ff.

[19] *Sixth Annual Report of the American Institute of New York* (Albany, Charles Van Benthuysen, 1848), pp. 674, 707–714; Nathan Burchard, *Address on Agriculture Delivered at the Request of the American Institute of the City of New York . . . September 6, 1847. Accompanied by Remarks on the Establishment of an Agricultural College and Experimental Farm . . . by Charles L. Fleischmann* (New York: W. E. Dean, 1847).

thither immigrants from Germany.[20] Although this plan fell through, Fleischmann soon became absorbed in promoting German emigration to the United States. He believed with his extensive knowledge of the country's resources, economic growth and opportunities he could do much to stimulate the emigration of his distressed and discontented fellow countrymen to his adopted country. His concern for German immigration was doubtless further excited by his temporary interest in a land company in New York which sought to aid German immigrants in acquiring land for farms.[21]

Fleischmann set about writing in German a series of treatises on American agriculture, industry, commerce, government and law for sale to prospective emigrants in his native land. Five of his treatises were published in Stuttgart and Frankfurt in 1848 to 1852. It was at this time that German emigration was flowing in greatly increased volumes to the United States and numerous guides and emigration gazettes were hastily prepared to tap this market. With at least seventeen other emigrant guides in the German language available, the competition was keen but Fleischmann had certain advantages in that he had more familiarity with various parts of the United States than some of the authors.[22] Moreover, in 1849-1853 he became the official representative of this country as consul in Stuttgart.

The first of Fleischmann's works intended for settlers was *Der Nord Amerikanische Landwirth. Ein Handbuch für Ansiedler in den Vereinigten Staaten (The North American Farmer. A Guide for Settlers in the United States)*, published in Frankfurt am Main in 1848 and distributed in the United States through Rudolph Garrigue, a New York bookseller.[23] It is a detailed and elaborately illustrated exposition of farming and farm problems in the United States and the opportunities the country offered to immigrants, accompanied by numerous admonitions and warnings. The author drew upon his own extensive familiarity with farming in various parts of the country but he also included long extracts from the best agricultural experts of the time, sometimes with credit assigned, sometimes without. This lavish borrowing was standard practice with writers of emigrant guides and travel accounts and Fleischmann was possibly more guarded in this respect than most of his contemporaries. His major service was in translating the extracts into German for his fellow countrymen. Despite its plagiarism and its extensive borrowings, its unbalanced treatment, such as the allocation of 52 pages to detailed description with illustrations of the many kinds of trees and their fruits, the book constituted a useful compendium for German immigrants. A reviewer in the New York *Literary World* declared that its usefulness was not confined to immigrants for it taught Americans much about their agriculture by a recognized expert.[24] It was this book that Kate Asaphine Everest, the principal historian of Germans in Wisconsin, said "was widely

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[20] N. Amory to Lipscomb, Washington, May 8, 1840, George P. Garrison, "Diplomatic Correspondence of the Republic of Texas," American Historical Association, *Annual Report*, 1907, vol. ii, part 1 (Washington: Government Printing Office, 1908), pp. 453–454.

[21] George Leibbrandt and Fritz Dickmann, *Auswanderungsakten des Deutschen Bundestags (1848/49) (Schriften des Deutschen Ausland-Instituts Stuttgart*, vol. 3, Stuttgart, 1932), pp. 50–51.

[22] No attempt is here made to list all the emigrant guides published for the German trade but the following list includes the better known ones for the years from 1848 to 1852. Kate Asaphine Everest, "How Wisconsin Came by its Large German Element," Wisconsin State Historical Society, *Collections*, Vol. XII (Madison, 1892), pp. 314–318, lists seven other emigrant guides written for Germans for this same period.

Alexander Ziegler, *Der Deutsche Auswanderer nach den Vereinigten Staaten*. (Leipzig, 1849), 364 pp.

Karl Andree, *Nord-Amerika in geographischen und geschichtlichen Umrissen*. (Braunschweig, 1851), 810 pp.

George M. von Ross, *Des Auswanderers Handbuch* (Elberfelt, 1851), 509 pp.

Otto Zirckel, *Skizzen aus den und über die Vereinigten Staaten* (Berlin, 1850), 181 pp.

Carl Kohler, *Briefe aus Amerka; ein lehrreicher Wegweiser für deutsche Auswanderer*. (Darmstadt, 1852), 234 pp.

Fr. C. L. Koch, *Die Mineral-Gegenden der Vereinigten Staaten Nord-America's am Lake Superior*. (Gottingen, 1851), 72 pp.

Karl Weichardt, *Die Vereinigten Staaten von Nord-Amerika*. (Leipzig, 1848), 448 pp.

J. Witlenborger, *Der Rathgeber und Wegweiser für Auswanderer nach den Vereinigten Staaten* (Heilbronn, 1848), 144 pp.

A. R. Thummel, *Die Natur und das Leben in den Vereinigten Staaten*. (Erlangen, 1848), 521 pp.

B. Schmolder, *Neuer practischer Wegweiser für Auswanderer nach Nord-Amerika* (Mainz, 1848-1849), 3 parts.

[23] The John Crerar Library copy of this work was published by G. F. Hener's Verlag, at Frankfurt am Main, 1848, and distributed by Rudolph Garrigue.

[24] *The Literary World* (Dec. 2, 1848), iii, 871.

circulated in Germany, and is said to have had very much to do with the great influx of immigration to Wisconsin" in the late forties. Although Miss Everest's study is well documented, unfortunately the source of this statement is not given and what follows seems to indicate some confusion in the author's mind. In saying that Fleischmann "dwells chiefly upon the similarity of the climate and soil" of Wisconsin "with those of the northern provinces of Germany, and likewise points to its high degree of healthfulness, comparing it with the fever states—Illinois, Indiana, and Missouri," she appears to be confusing it with some other emigration account more favorable to Wisconsin than Fleischmann's first major work. Actually, Wisconsin receives practically no attention while Vermont, Pennsylvania, Virginia, Mississippi and South Carolina are given much space.[25]

Chief among the authorities from whom Fleischmann borrowed was Solon Robinson whose articles on nearly every phase of agriculture in the Albany *Cultivator*, the *American Agriculturist*, the *Prairie Farmer* and the *Cincinati Gazette* were practical, filled with figures of costs, income and outgo of farmers. Robinson's descriptions of prairie farming in Indiana and Illinois, had already been copiously reproduced by Josiah T. Marshall in his *Farmer's and Emigrant's Hand-Book: being a full and complete Guide for the Farmer and the Emigrant* and it is from this guidebook that Fleischmann drew much of his material.[26] Other experts whose works were generously extracted were Henry L. Ellsworth, who was deeply involved in large scale farming in the prairies of northwestern Indiana, Henry S. Randall, the recognized authority on sheep, Henry Colman, Massachusetts Commissioner of Agriculture, Nicholas Longworth, famous for his grape experiments and large winery, William Youatt, the horse and cattle expert, and Daniel Jay Browne, probably the most prolific writer on different aspects of farming. Fleischmann also made effective use of material in the New York *Staats Zeitung*, *The Farmer's Monthly Visitor*, the *Green Bay Advocate*, the *Ohio Cultivator*, the *Annual Reports* of the United States Patent Office, and the Secretary of the Treasury, and of the agricultural societies of a number of states. His skill as a draftsman enabled him to include many woodcuts (246) showing farm machinery and tools currently in use. These woodcuts, particularly those of plows, harrows and horse power machines, with their fine detail, well illustrate the progress America had made in developing labor saving devices.

In this first book Fleischmann took pains to repudiate some notions about the South and slavery which, he said, had been propagated by speculators in lands in northern states to frighten German immigrants from settling in southern states. He gave an inordinate amount of space to slavery and to those parts of the South which were attracting German immigrants the least, and has little to say of the areas to which Germans were mostly going in the West. In later publications his emphasis was different.

Since Fleischmann was writing for Germans, it was obviously to his advantage to be in Germany where he could give more attention to the publication and sale of his works. In 1849 he sought appointment as consul to Germany where he wished to continue his activities in "giving direction to Emigrants, coming to this country. . . ." In support of his application he submitted a copy of his major work on the American Farmer with a favorable review of it in the *Literary World* and drew attention to the assignments he had held in the Patent Office. Another motive for seeking the position was to permit him to resume his study of European agriculture that he might later share his knowledge, particularly the best of farm experience abroad, with American farmers.[27] The Secretary of State was assured by a political friend of Fleischmann that he was a "decided Whig," a man of erudition and an amiable gentleman who was going to Germany to educate his children and wished the consulate at Stuttgart.[28] The appointment was made and in August Fleisch-

[25] Kate Asaphine Everest, "How Wisconsin Came by Its Large German Element," Wisconsin State Historical Society, *Collections*, vol. XII (Madison, Wisconsin, 1892), 315.

[26] Second edition, New York: D. Appleton & Co., 1845.

[27] Fleischmann to J. M. Clayton, Secretary of State, April 24, 1849, National Archives.

[28] J. B. Sevier to Clayton, April 24, 1849, National Archives.

mann arrived in Stuttgart where he remained nutil 1853.[29]

Stuttgart being the center from which great numbers of Germans were migrating to the United States, the work of the consulate took up much of Fleischmann's time. His compensation was slight but the appointment gave him the opportunity to visit again his native land, to study further its agriculture, and to carry on his writing while attending to the stream of emigrants flowing westward. Who better could know what sort of information about the promised land the emigrants wanted? The office also gave Fleischmann prestige which he and his publishers used to the fullest in promoting the sale of his books.[30]

While at Stuttgart Fleischmann worked with the Würtemberg Branch of the National Association for German Emigration and Settlement in preparing a sixteen page pamphlet for use in promoting a colony of Germans to be established in America.[31] In this pamphlet, dated November 20, 1849, Fleischmann argued that group migration, because it protects settlers against deception and fraud and at the same time makes possible joint planning of farming and industrial development, was superior to the migration of individuals to America. He proposed that $550,000 be raised for the purchase of 150,000 acres of land from the Government at $1.25 an acre and for platting a city in the midst of the land with an immigrant depot where families could stay until they were settled on their own improved farms. A store, hospital, school, church and library were to be instituted. Local industry was to be encouraged through loans made to responsible entrepreneurs. Through the sale of one half acre lots in the city at $40 each, four-acre parcels on the outskirts of the city at $200 and 160-acre farms with a loghouse and five acres improved at prices ranging from $1.75 to $5.00 an acre he estimated that all the costs could be recovered in six years with a substantial margin of profit.

Particularly interesting was Fleischmann's decision to favor Michigan rather than Wisconsin for the location of the colony. Both states were suited for wheat farming but he felt that Michigan offeerd the best opportunities. Wisconsin still had an abundance of good potential farm land for sale at $1.25 an acre while in Michigan the public lands had been picked over more thoroughly and the remnants were certainly less desirable. Notwithstanding, Fleischmann favored Michigan, probably because he had heard of the large acreage that land speculators were acquiring in the area around Madison and Milwaukee. We may conclude that Fleischmann's pamphlet did little to divert German emigration from Wisconsin, to which the largest part were going.

The third of Fleischmann's writings for German immigrants, *Erwerbszweige, Fabrikwesen und Handel der Vereinigten Staaten von Nordamerika (Crafts, Industry and Commerce of the United States)* was first published in Stuttgart in 1850 and reprinted in 1852.[32] Since his first employment in the Patent Office Fleischmann had been gathering information for this work which was planned to show to German business men, tradesmen and skilled workers the opportunities for them to set up in business or to obtain employment in their craft in America. Not overly possessed of modesty, Fleischmann was very critical of the flood of guides and gazettes then appearing in the German language because they had been written by people who had actually seen little of America and knew less of its trades and businesses and consequently provided inadequate and too frequently inaccurate information. His own eighteen years experience certainly gave him opportunities that few who were writing for immigrants had enjoyed. This experience and wide acquaintance with American occupations is reflected in *Erwerbszweige* which is a massive 610-page exposition of almost every conceivable industry and employment in the country, including the larger industries such as cotton, woolen, iron and paper manufacturing as well as the occupations of apothecary, confectioner, architect, music teacher, physician, actor,

[29] *Senate Executive Journal*, vol. viii (Washington, 1887), p. 129.

[30] Fleischmann to F. Webster, Jan. 10, 1851, National Archives.

[31] *Plan für deutsche Auswanderung und Ansiedelung . . . in den Vereinigten Staaten von Nordamerika* (Stuttgart: Franz Kohler, 1849).

[32] I have used the Yale University copy of the second edition published in Stuttgart, 1852, by Franz Kohler.

brickmaker, chimney sweep, coach maker and blacksmith. The material is drawn from *Census Reports, Annual Reports* of the Patent Office and of other government agencies, periodicals, supplemented by Fleischmann's own observations on his extensive travels. Readers were told that America offered many favorable opportunities to German immigrants but at the same time they were warned that only through hard work and the exercise of good judgment could they expect to succeed and, above all, they must not be too sanguine of making early fortunes. In this and in *Der Nordamerikanische Landwirth* Germans, whether prospective emigrants or not, had available descriptions of farming, professional and industrial activities and opportunities in the United States presented in a restrained and sober tone and not minimizing the difficulties or hardships involved in entering into them.

In his fourth work for German emigrants Fleischmann brought forth in 1852 a conventional *Wegweiser und Rathgeber nach und in den Vereinigten Staaten (Travellers Guide and Counselor)*.[33] At the time he was preparing it his *Landwirth* had been sold out and instead of reprinting it he wished to revise it in the light of later statistics but could only do that when he returned to America. Consequently, he drew heavily on his first guide for this fourth work but added much that he had assembled since 1848. He offers the usual admonitions against overoptimistic expectations, gives details about routes to and through the United States, lifts much about farming from his first work, provides some English translations for simple but needed requests, and brief but fairly detailed descriptions of each of the thirty states and five territories. In the section on Wisconsin, restrained though it appears in comparison with similar descriptions in other guides, Fleischmann maintains that Wisconsin was the place for Germans to go because it was a healthy and fertile area and its lead mining district provided a market for its produce. The prairie states, on the other hand, were less advantageously located with respect to markets, were not so healthy, and were therefore less attractive to immigrants. It may have been this *Guide* that Kate A. Everest thought had so much influence in directing immigrants to Wisconsin, though it certainly deals more critically with the Badger State than do some other widely circulated guides.

During the fifties the revived interest in purebred livestock brought about the importation of many choice animals from England, France and Germany. Fanned by the agricultural journals, which gave much space to descriptions, pedigrees, and illustrations of Shorthorn cattle, Merino and Saxon sheep and Berkshire and Suffolk hogs brought in from abroad, the excitement over such importations reached a high pitch and made possible extraordinary prices for the European seller and good profits to the American dealer. Many an unwary buyer, made further incautious by the prevailing boom, had palmed off on him stock which was neither purebred nor choice. Prior to the general acceptance of regulations for breeding standards, the buyer took great risks unless he was an expert judge of stock.[34]

Fleischmann's account of sheep raising and of the wool trade in Europe in the 1847 *Report* of the Patent Office had established him as a leading authority on sheep and while he was abroad his aid was sought by dealers in purebred stock. He guided a number of dealers through the principal sheep raising sections of Würtemberg, Saxony, Bavaria, Silesia, Austria and Hungary, helping them to select the best sheep that could be bought. The Saxon Merino which had enjoyed a great vogue in America he maintained was not well adapted to conditions there because of its light fleece, extremely fine wool, poor carcass and delicate physique. Much better suited to the rigors of northern winters, poor feeding conditions, and demands of wool manufacturers were the Rambouillet Merino in France and the Infantado breed best found in Silesia. The Infantado breed with its large carcass, heavy folded skin and much sought after wool he

[33] Published at Stuttgart, 1852, by C. P. Scheitlin's Verlagshandlung. I used the copy in the University of Michigan Library.

[34] According to a Vermont historian "unscrupulous jockeys 'stubble sheared' and umbered sheep of doubtful pedigree into a simulation of desired qualities that fooled many an unsuspecting purchaser." Rowland E. Robinson, *Vermont. A Study of Independence* (Boston: Houghton Mifflin and Company, 1899), p. 357.

especially favored. Vermont sheep raisers and dealers profited largely from the selections made from the Infantado flocks in Silesia with the aid of Fleischmann. The American consul also helped a prominent gentleman farmer from Massachusetts in buying a number of Murzthal cattle. While abroad Fleischmann gathered material for a work on cattle and collected specimens of wool and seeds and made sketches of the newest improvements in agricultural implements that might be useful in connection with his later writing.[35] He also prepared a lavishly illustrated work on European grapes, in five large folio volumes, which was subsequently presented to the American Institute of New York.[36]

In 1852 Fleischman returned to the United States and began laying plans with two other men with whom he had formerly been associated in the Patent Office for the establishment of a technical journal which would concern itself with inventions, improvements and discoveries in "science, mechanic arts and agriculture." The first number of the *American Polytechnic Journal* appeared in January, 1853. From the outset Fleischmann's contributions were numerous, including translations of articles in foreign languages on experiments with types of manures in Saxony, irrigation in northern Italy, Arabian horses, the cotton gin, and butter making in Prussia. He opined, quite correctly, that much of the material appearing in farm journals on agricultural chemistry was "visionary and impractical," and proposed to give "greater precision and definiteness to data from which conclusions are drawn." The chatter about large animals and large crops in these journals was meaningless, he maintained, without clear statements of details of management, proportions, and costs. There followed from his pen articles on agricultural schools, Swiss dairymen and their mode of cheese making, propagation of the grape vine, vine culture in Hungary, patent laws of European countries and numerous other subjects.

The *American Polytechnic Journal* was a melange of articles relating to science loosely tied together. It had to compete in semi-popular appeal with a number of other journals that were primarily concerned with the application of science to industry, commerce, transportation and agriculture.[37]. *The Scientific American* already had assumed the dominant position in this field by virtue of its lively style, intelligent variety of offering, and excellent illustrations. Fleischmann's articles were the most unique feature of the *Journal* but since they dealt very largely with agricultural matters they did little to win readers interested in mechanics. These contributions might better have appeared in a farmers' journal where they would have been read by the more progressive agricultural class but tucked away in a magazine with such a name they were seen by few people who could profit from them. The *Journal* lasted only through two years.

In 1855 Fleischmann, now one of America's better known agricultural authorities and industrial draftsman, was appointed one of the three commissioners who were to represent New York State at the Universal Exhibition at Paris. While attending the Exhibition Fleischmann served as judge in awarding prizes in the field of manufactures, particularly textiles, and at the same time was selected at a meeting of all the commissioners of the various American states to act as reporter. He also acted as correspondent for the *New York Tribune* while at the Fair.[38]

Following his duties at the Paris Exhibition Fleischmann traveled extensively in Russia, spending considerable time in St. Petersburg, touring through the Ukraine and serving as acting consul in Moscow for a time. Agriculture, the position of the serf and Russia's tremendous potential as a producer of wheat and other farm commodities all absorbed his

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[35] I have found no evidence that this work was printed. *Transactions* of the American Institute of the City of New York (Albany: Charles Van Benthuysen, 1853), letter of James Tallmadge to C. L. Fleischmann, U. S. Consul General, Stuttgart, pp. 143–147.

[36] *American Agriculturist* (Aug., 1851), X, 243; *Cultivator* (June, Sept., Oct., 1851 and Aug., 1852), new series, VIII, 218, 310, 331, and IX, 281; Fleischmann, Stuttgart, Jan. 10, 1851, to Daniel Webster, National Archives; *American Polytechnic Journal* (Jan.-June, 1853), I, 70–73.

[37] *Scientific American* (Jan. 8, 1853), VIII, 131. Here are listed a number of similar journals which could not compete with the *Scientific American* and had been forced to suspend, including *The Eureka, The Engineer, The Scientific Mechanic, Mirror of the Patent Office* and *Mechanics Advocate.*

[38] *New York Senate Documents,* 79th Session, 1856, vol. iii, no. 108, pp. 3, 4, 11; Gustav Körner, *Das Deutsche Element in den Vereinigten Staaten von Nordamerika, 1818-1848* (Cincinnati: A. C. Wilde & Co., 1880), p. 419.

attention. The result of this investigation was the publication of a 64-page brochure, *Les Etats-Unis et la Russia considérés au point de vue de la grant culture et du travail libre.* This curious little book, though written in French and published in France seems to have been designed to influence agriculture principally in Russia and the United States.

The disrupting effects of the freeing of the serfs on Russian agriculture, Fleischmann believed, could only be offset by the application of the best practices of American agriculture. Among these practices were the use of machines in place of men and draft animals and of steam power wherever practicable, the extension of the railroad network throughout the country, close attention to raising corn and hogs and improvements in breeding standards. Russians could profit from a study of farm methods in the prairies of Illinois and Iowa, he maintained.

Fleischmann's shrewd observations of farm practices, labor and marketing problems and the relative costs of production of cereals in Russia, Germany, Hungary and North Africa, gave him much to reflect upon as he returned to the United States. The abundance and cheapness of labor abroad, as compared with the scarcity and high cost of labor in all parts of his adopted land was, he felt, of prime importance in current and future plans for agriculture. America's superiority in farm machinery did not altogether compensate for this disparity. Furthermore, the expected construction of railroads throughout Russia would inundate Europe with cheaply produced grain that would surely hurt American grain shipments. Possibly, thought Fleischman, the steam plow with which experiments were being made at the time, might aid the American farmer in competing with cheap European labor. Fleischmann was concerned lest America lose another of her advantages: an abundant supply of good farm land. Unfortunately, the destructive use of farm land, whether in the cotton and tobacco belts of the South or the corn and wheat betls of the North, was threatening the existence of a permanent and abundant supply of good farm land, even though there was still much untilled land. European farm practices did not result in soil erosion and ultimately in farm abandonment. If Americans were to continue to feed themselves and to sell surpluses abroad in competition with countries with low labor costs they must rotate their crops, use cover crops, enlarge the numbers of their livestock and prudently use the manure thus provided. But even these improvements would not be sufficient to assure the continued prosperity of agriculture.

Erosion, soil losses, could be—and should be—combatted in still another way, Fleischmann was convinced. Shallow plowing left the sub-soil impacted and impenetrable by root structure and the top soil easily subject to washing. Deep plowing, on the other hand, made possible penetration of roots to lower depths and mixed the light surface soil with the clay sub-soil. The result was vertical root structure which permitted close cultivation and soil that washed much less easily. Deep plowing was possible through use of a new and improved plow with three coulters and a double moldboard. All this was presented and strongly argued in the lead article in *De Bow's Review,* in November, 1859.[39] Fleischmann's prominence in agricultural writing assured thoughtful consideration of his views.

At the conclusion of the Civil War Fleischmann again turned his attention to directing German emigration to the South. He warned that Germans sought land which they could own and would not be content to move to areas where it was unobtainable because it was held in large ownerships. To draw a share of the reviving German immigration the South must not only carry out advertising activities among the stream of German immigrants but it must give protection to immigrants, provide favorable rates on its railroads, and show the immigrants that they were wanted and would be treated generously. He pointed out that the flood of literature published about the United States for German immigrants contained little information relating to the South because of the German abhorrence of slavery and its location. Now, however, there being no more slaves the South could draw a share of im-

[39] *De Bow's Review* (Nov., 1859), XXVII, 495–515.

migrants if it energetically advertised for them and provided a favorable reception.[40]

The following year Fleischmann was back in *De Bow's Review* urging the south to revive its worn out lands by deep plowing to stir up the sub-soil and permit roots of cotton and corn to penetrate deeply, greater use of livestock for soil improvement, the use of green manure such as the lupine and buckwheat to build up soil and stressed the need for agricultural schools which had as yet made no great impress on farm practices in the South.[41]

Fleischmann's career after 1859 is not easy to trace. In 1873 he attended the Vienna World's Fair as correspondent of a number of American newspapers. Seven years later he returned to his earlier interests in a memorial he submitted to Congress "On restoring the exhausted soil by means of a natural fertilizer in inexhaustible quantities within the United States." The House Committee on Agriculture gave consideration to the memorial but found it called for no appropriation or legislation and expressed the hope that the purpose would be achieved by "private experiment and enterprise." [42]

Since Fleischmann first took up the cudgels in behalf of agricultural education American agriculture had made great progress. The United States Department of Agriculture had been established and in it were centered some of the projects Fleischmann had earlier urged upon the government, agricultural colleges were in operation in many of the states, though their programs in technical fields fell behind those of schools abroad, state appropriations for agricultural work were much expanded, agricultural experiment stations had been founded in California, Connecticut, New York, New Jersey and North Carolina and were being considered in other states. At the new agricultural colleges and experiment stations much was being learned in the fields of agricultural chemistry, entomology, veterinary medicine and animal husbandry, and the information was being extensively disseminated. Charles Lewis Fleischmann had played a notable role in promoting these developments through his memorials to Congress, his numerous articles and notes in the *Annual Reports* of the Patent Office, the *American Polytechnic Journal,* the *Transactions* of the American Institute, and numerous farm journals. His own books intended for immigrants had aided materially in stimulating and directing the flow of immigration to the United States and his caustic criticisms of American agricultural practices may well have stung some readers to a greater appreciation of the errors of their destructive ways.

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[40] Fleischmann, "Openings of New Fields to Immigrants," *De Bow's Review*, new series, vol. I, (January, 1866), pp. 87–91.

[41] Fleischmann, "Our Exhausted Land—How Shall We Restore Them?", *De Bow's Review*, new series, vol. iii (June, 1867), pp. 539–547.

[42] *House Reports*, 46 Cong., 2 Sess., April 24, 1880, vol. 4, no. 1133.

FARMING IN THE FUTURE

Future developments are based on the demands and needs of today and tomorrow... Storage units will be developed . . . like solar energy during the day, electric energy at night, and energy from surplus products. From these storage units could be removed the appropriate energy desired for the task at hand—heat, electrical, or chemical energy.

A chore tractor will be designed especially for operations around the farmstead. The tractor could operate and be controlled to travel a certain path or track and receive its signals from a tape or a central headquarters manned or preset on a controller by the farmer.

Further developments will be made in pneumatic conveying, vibrating feeders, and meters to determine the milk from each cow. . . . The health of the animals might be determined at each milking by the body or milk temperature and analysis of excreta or respiration products. . . . A small radioactive device in the stomach of the cow will send signals regarding health and digestion.

Carl W. Hall, "Mechanization and Automation," *Power to Produce* (USDA: Yearbook of Agriculture, 1960), pp. 422-423.

Wisconsin Dairy Farmers on Strike

A. William Hoglund

> The only question is how much longer are we to content ourselves by waiting for the depression to right itself or prosperity to come peeking around the corner, rather than taking action ourselves, for our own preservation and for the good of the country at large.[1]

In the early 1930's Wisconsin farmers were hard hit by the Great Depression. Their reputation for contentment and independence was endangered as thousands faced the loss of their farms through mortgage foreclosures, while others were evicted, and one family was driven off with machine guns.[2] To stop foreclosure proceedings, hundreds banded together, uttered threats, and even brandished ropes, while they bid a few cents or dollars on lands and chattels which were restored by them to the farm operators. But farmers did more than stop foreclosure proceedings. Troubled by low milk prices, dairy farmers went on strike in 1933. Instead of withholding their labor as did striking workers, they kept their milk off the markets in hope of forcing price rises. Indeed, such strike action created fears that a revolution had started in Wisconsin.

Although engaged in cooperative marketing to some degree, Wisconsin dairy farmers did not determine the prices which they received for their milk. As a report by the state department of agriculture and markets and the college of agriculture pointed out, farmers had lost control of their marketing when agriculture was commercialized. Henceforth, the report said, "the former simple method of price establishment in a restricted area" had given way to "a complicated price-mechanism" which extended from the state and nation to the entire world. Buyers of milk and other farm products thus came to determine prices not only in terms of farm factors like seasonal production, but also by market demand, industrial and financial conditions, and international trade. Farmers, moreover, were weakly organized to bargain over prices in comparison to those who were connected with the buying and distribution of farm produce.[3]

More specifically, dairy farmers received prices which were based on the uses made of their milk. In 1933 about three-fourths of all Wisconsin milk was manufactured into products like cheese, butter, and ice cream; and much of the rest was sold for fluid use in cities.[4] Farmers received more money from milk sold for fluid use than for manufacturing. Dairy companies often used the two-price system under which a composite price was determined in proportion to the milk sold as fluid or diverted into manufacturing. Dealers also used variations of this system or paid a flat price regardless of the use made of the milk. Their prices to farmers were generally interdependent irrespective of the system of payment or the use made of the milk, for they determined them in terms of common market information such as the wholesale price for butter sold on the Chicago produce exchange or for cheese sold at weekly biddings on the two exchanges in Plymouth, Wisconsin.[5]

Compared to those doing business with them, dairy farmers suffered more from the depression. Generally speaking, the official index of prices paid to all Wisconsin farmers declined faster than did the index of prices paid by them. In particular, dairy farmers received on the average less than one dollar per hundredweight of milk in 1932 and 1933 after being paid almost three dollars in 1919 and about two dollars in 1929. Their share of the consumer's dollar declined, while the dairy companies fared somewhat better. State

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[1] *Farm Relief News* (Madison, Wis.), 3: 2 (Oct. 1932).

[2] *The Elkhorn* (Wis.) *Independent*, Dec. 8, 1932.

[3] "General 'Mal-Conditions' in the Dairy Industry," *Journals and Indexes of the 1931 Special Session of the Wisconsin Legislature: November 24, 1931, February 5, 1932* (Madison, 1932), Pt. 2: 453–456.

[4] S. J. Gilbert, *Wisconsin Dairy Production, Utilization, and Related Data*, Wisconsin State Department of Agriculture, Bulletin 250 (Madison, 1945), 39.

[5] Milk prices are discussed in W. P. Mortenson, *Economic Considerations in Marketing Fluid Milk*, University of Wisconsin, Agricultural Experiment Station, Research Bulletin 125 (Madison, 1934), 14–17, and R. K. Froker, "The Base-Surplus Milk Price Plan," *Outlook and Economic Information for Wisconsin Farmers*, University of Wisconsin, Agricultural Extension Service (Madison), 3: 9–12 (June, 1933).

farm officials made inquiries and reported that, three years after 1929, the dairy industry's profits were being "maintained at former levels" unlike those of other businesses and farmers in the state. They indicated that the two-price system did not reflect accurately the actual costs, expenses, and profits of milk companies which showed considerable profits on the sale of milk products and losses on fluid milk sales, while farmers were paid only one half as much for their milk used in manufacturing as for their milk sold into fluid use. State farm officials and others also pointed to the collusive practices of bidders on the Plymouth cheese exchanges that had virtually ended competitive bidding and in turn affected the level of prices paid to farmers. Their concern over milk prices was partly prompted by pressure from the state legislature in 1931 and later.[6]

Understandably, farmers became more disgusted with milk marketing and businessmen as reports appeared on the profits made by dairy companies. According to a study made of the Milwaukee milk market in 1930, farmers were suspicious when they thought of the milk buyers as a group and often intimated that the buyers acted together to end competition in obtaining milk. More outspoken farmers suggested that milk buyers represented a "milk trust" which actually conspired to exploit them by paying low prices. One farm paper explained "that our economic set-up, man-made and controlled by the relatively few" caused the farmers' distress. It also stated that farmers were "farmed by the other business interests" to the point of bankruptcy. In other words, sentiments were expressed to suggest that milk dealers conspired to deny farmers an adequate share of the consumer's dollar.[7]

Farmers also suspected that public officials and agricultural agencies conspired with businessmen. One livestock breeder contended that the depression resulted from the skillful plans and devilish acts of "Wall street bankers" whose "gambling" was legalized by the United States Congress to rob the homes and property of the poor. So, he concluded, farmers would have been better off without "the damnable politicians and paid hirelings of those who are so much in favor of making serfs and slaves of the men who feed the nation. . . ." In part, this animus against public officials came because federal agencies seemed to offer so little relief; in 1931 the chief of the federal dairy bureau thus said that he could recommend little except renewing efforts to find new milk markets and practicing economy in the feeding of livestock. On the state level it was based on the view that the various public officials in the capital and the professors of the state college of agriculture had fallen down on their jobs. It also came from the feeling that agricultural agencies and public officials were parasites having no real firsthand contact with farmers and their life. According to one farm organizer, "the actual dirt farmer" had little influence on the many agencies concerned with agriculture, while another saw little hope in politicians who had "never tasted the sweat of their brow," except that which possibly came from playing golf. Then, when public officials were reluctant to support new farm organizations, the suspicions of a great conspiracy against farmers seemed confirmed.[8]

As confidence lessened in public officials and existing farm agencies, new farm organizations started to appear. One such organization was the Central Co-operative Association incorporated under Wisconsin's laws in March, 1931. According to one of its promoters, the organization was formed by "a small group of men, either actively engaged in dairy

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[6] Walter H. Ebling and Emery C. Wilcox, *Wisconsin Farm Prices, Production, and Income*, Wisconsin State Department of Agriculture, Bulletin 249 (Madison, 1944), 43, 109–110; Wisconsin State Department of Agriculture and Markets, "Milk Investigation: Fluid Milk Markets, Distributor Profits, Distributor Prices, Ice Cream Costs and Profits, Ice Cream Prices, Farm Products Prices, Farm Supplies Prices, for the Period Ending January 1, 1929 to June 1, 1932," typed copy in Legislative Reference Library, Madison (Madison, 1932), 48, 70, 75; "General 'Mal-Conditions' in the Dairy Industry," 446–453, 459–465.

[7] W. P. Mortenson, *An Economic Study of the Milwaukee Milk Area*, University of Wisconsin, Agricultural Experiment Station, Research Bulletin 113 (Madison, 1932), 3–5, 52; *Farm Relief News*, 2:2 (Aug. 1931); 3:1 (Mar. 1932); *The Phonograph* (Colby, Wis.), Apr. 27, 1933.

[8] *The Capital Times* (Madison), Sept. 2, 1932; letter from O. E. Reed to Paul Weis, Feb. 7, 1931, in present writer's possession; A. H. Christman, "Agriculture as She Are Wrote," *The Wisconsin Dairymens News* (Menomonee Falls, Wis.), 1:3 (Oct. 1932); Walter M. Singler, "Organization," *ibid.*, 1:2 (Nov. 1932); *Farm Relief News*, 1:2 (July, 1930); 2:2 (Dec. 1931); *The Milwaukee Journal*, Sept. 3, 4, 1932.

farming, or engaged in occupations of business" affected by the milk prices paid to farmers. The latter group included the long-time farm organizers, Ivan M. Wright and Harvey E. Holmes, who dominated the leadership of the new organization. Ivan Wright, who was called "Mr. I Am Right" by his critics, had served as secretary of the Wisconsin Farm Bureau Federation, promoted the cooperative distribution of farm supplies, and started to publish the *Farm Relief News* in 1930. He shared his organizational zeal with Harvey Holmes who, since 1900, had worked for farm organizations, including the Wisconsin Society of Equity and the American Tobacco Pool in Kentucky. Their new organization aimed to secure better farm prices, promote cooperative marketing, and coordinate the efforts of all groups engaged in agriculture.[9]

Quite early the Central Co-operative Association made clear its desire to organize dairy farmers. Three months after its formation, the organization was promoting a "milk pool" to bargain for farmers in the sale of their milk; and its statement of freedom from the "milk trust" was presented in the form of a declaration of independence. In June, 1931, Richland county was the first one to unite its local groups; and during the next month the Central Co-operative Association promoted a state-wide dairy organization. Finally in November, 1931, representatives met in Madison and paved the way for a state organization which was incorporated as the Wisconsin Co-operative Milk Pool after another meeting in April, 1932. Incorporated after a stormy convention with heated verbal battles and sergeants-at-arms patrolling the aisles to prevent trouble, the new organization made clear its break with the Central Co-operative Association in spite of the opposition of Wright and Holmes, who shortly had no further ties with the milk pool.[10]

After its separation from the Central Co-operative Association, the Wisconsin Co-operative Milk Pool achieved prominence and attracted dairy farmers in eastern Wisconsin, especially in the Fox River area. In July, 1932, it had 3,381 members in 36 counties. About one year later, its members totaled 11,283 in 46 counties; and of them 8,549 were in Dodge, Outagamie, Oconto, Washington, Waukesha, Marinette, Price, Winnebago, Sauk, Ozaukee, and Brown counties. During the ensuing months the milk pool reported having even more thousands of members, but its membership perhaps never exceeded eight per cent of Wisconsin's farmers.[11]

The milk pool members came largely from the poorest dairy farmers of eastern Wisconsin. In 1932 they had on the average fewer cows than did all dairy farmers in eastern Wisconsin. As their milk was largely diverted into manufacturing, they were paid less than those who delivered milk for fluid use in the city markets. The latter milk producers, for example, in the Milwaukee area thus tended to be hostile towards the pool's activities, because they were the "kings" among dairy farmers and did not want to lose their comparatively better position. On the other hand, the pool members "had nothing to lose," except their "courage of desperation."[12]

Although often revealing their ethnic origins, especially German, the milk pool members undoubtedly represented only a cross section of Wisconsin's rural ethnic groups. In 1930 the foreign-born represented over twenty per cent and the second generation made up almost fifty per cent of the heads of all rural farm families in Wisconsin. The members were most numerous in the cheese and butter areas of eastern Wisconsin

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[9] H. E. Holmes, "Origin and Development of Wisconsin Co-Op Milk Pool," *Farm Relief News*, 3:4 (June, 1932); *The Janesville* (Wis.) *Gazette*, Dec. 21, 1935; Biographical Sketch of Ivan M. Wright Based on an Interview, February 4, 1954, in MS Division, State Historical Society of Wisconsin, Madison.

[10] *Farm Relief News*, 2:1, 4 (June, 1931); 2:1 (July, 1931); Holmes, "Origin and Development"; *The Capital Times*, Nov. 23, 1931; *The Wisconsin State Journal* (Madison), June 1, 2, 3, 11, 1932. Although the Central Co-operative Association has continued to file reports with the Wisconsin Secretary of State until the present time (1960), it became virtually inactive after the milk pool broke away.

[11] Walter M. Singler," List of Total Co-op Membership and Number of Cows by Counties," *Farm Relief News*, 3:2 (July, 1932); *The Wisconsin Dairymens News*, 1:1 (June, 1933); [R. K. Froker and H. H. Erdmann], *A Business Analysis of the Wisconsin Cooperative Milk Pool*, mimeographed ([Madison], 1937), 14–17.

[12] Emil Rauchenstein, *et al.*, *Changes in Dairy Farming in Wisconsin, 1930-1948*, University of Wisconsin, Agricultural Experiment Station, Research Bulletin 166 (Madison, 1950), 24; *Farm Relief News*, 3:2 (July, 1932); Herbert Jacobs, "The Wisconsin Milk Strikes," *Wisconsin Magazine of History*, 35:30, 32 (Autumn, 1951); *Milwaukee Sentinel*, Feb. 19, 1933.

that were historically developed by Germans, Scandinavians, and other ethnic groups. No wonder then that a few immigrants were somewhat prominent in the affairs of the milk pool. But most leaders in the pool were without question second and third generation Americans, since English was written and spoken with no reports of language problems which surely would have occurred if the organization had been formed mainly by the first generation. In spite of the fact that its attorney emphasized the general relationship of the German and Scandinavian background to the thinking of Wisconsin farmers, the milk pool was formed essentially from economic rather than ethnic factors.[13]

Among the early members recruited was Walter M. Singler, who in his mid-thirties became president of the milk pool in June, 1932. Converted by Ivan Wright and Harvey Holmes, Singler became the organizer in Outagamie county and made its unit into the largest one in the state by the time that he became president. Until becoming an organizer, Singler had had no experience as a farm speaker, but he had grown up in a farm environment. The Singlers had farmed ever since his grandfather had arrived from Germany to Wisconsin. Although owning some land, Singler lived and worked on his father's forty-cow dairy farm in the early 1930's. He had not, however, always worked at home, because he had sold automobiles and stocks and even served as deputy sheriff in Texas where his parents had farmed for two years. His promotional experiences probably helped him as a farm organizer, for he was very persuasive with his fiery oratory, talking the "farmer's language." Besides, he appeared colorful, with his height of over six feet, wearing a goatee, red vest, and Texas-style hat. As one writer said, Singler's appeal drew varied explanations like "magnetism, personality, leadership, showmanship or just windy boloney," but in any event the man had "something that attracts." Indeed, Singler became "a much talked of man" throughout Wisconsin, and people reacted strongly for or against him. In 1933 people felt that Singler had an important destiny either as a dangerous demagogue or as a great leader.[14]

Echoing the farmers' complaints about low prices, the Wisconsin Co-operative Milk Pool sought means to achieve "cost of production plus," that is, to ensure profits after expenses. Of course, the aim was not new, because farm producers in the 1920's had organized to promote it, and the milk pool's parent organization had supported it. Milk pool spokesmen argued that, since businessmen set their own prices to ensure profits, farmers should also fix the prices on their commodities. According to the charter, the organization's main purpose was

> To obtain by collective bargaining and any other means necessary a fair price for milk at the farm. Said price [is] to consist of cost of production determined from time to time, for different grades and qualities of milk, plus a reasonable profit to the producer.[15]

State statisticians were expected to cooperate in achieving this goal, but bargaining was not to begin until milk pool officials decided that they had enough members or when enough dairy farmers had pledged to pool the milk of seventy per cent or more of the cows in the state. Since membership figures did not meet the requirements, the milk pool did not begin bargaining, but instead sought the "other means" of implementation.

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[13] Carbon copy of letter from William B. Rubin to A. R. Sanna, Apr. 7, 1934, in William B. Rubin Papers, MS Division, State Historical Society of Wisconsin; Gordon Rowland Lewthwaite, "The Regionalization of Butter and Cheese Production in Wisconsin," doctoral thesis, University of Wisconsin (Madison, 1955), 199, 202–203, 416, 423; United States Department of Commerce, Bureau of the Census, *Fifteenth Census of the United States: 1930; Population*, VI: *Families* (Washington, 1933), 1468–1472. In the state the rural farm families totalled 188,125, and of them, according to the country of birth of their heads, 42,584 were classed as foreign-born and 91,116 as native-born with one or both parents who were foreign-born. In the counties of Dodge, Outagamie, Washington, Oconto, Waukesha, Marinette, Price, Winnebago, Sauk, Ozaukee, and Brown the families totalled 32,943 of whom 6,889 were classed as foreign-born and 16,510 as native-born of foreign or mixed parentage.

[14] *Appleton* (Wis.) *Post-Crescent*, July 12, 1933; *The Milwaukee Journal*, Feb. 19, 1933; Jacobs, "The Wisconsin Milk Strikes," 31; carbon copy of letter from William B. Rubin to Harry A. Jung, Mar. 10, 1933, in William B. Rubin Papers; carbon copy of letter from A. R. Hanna to Colonel Philip G. Murphy, Mar. 13, 1934, in present writer's possession. Singler remained leader of the milk pool until early 1937.

[15] Articles of Organization of the Wisconsin Co-operative Milk Pool, No. W4764, Wisconsin Secretary of State, Corporation Division, Incorporation Papers of Defunct Domestic Corporations, Series 2/4/2, in Archives Division, State Historical Society of Wisconsin.

In 1932 Wisconsin farmers began to consider seriously the idea of a strike which was gaining vogue among midwestern farmers. Starting in Iowa under Milo Reno, farmers organized the National Farm Holiday Association which went on strike, that is, withheld farm products from the markets in the hope of securing price increases. Interested in the Iowa experience, a committee was set up in August to determine strike sentiment among Wisconsin farmers. The committee was formed by representatives called together by the Wisconsin Council of Agriculture to try uniting the milk pool and various other dairy organizations. Later, however, the council denied responsibility for setting up the committee and refused to endorse a strike. In September the committee organized a mass meeting of perhaps five thousand farmers who met at Marshfield where the Wisconsin branch of the National Farm Holiday Association was formed with an endorsement of strike action. In a few months the Wisconsin group claimed 130,000 members.[16] But, when three farm strikes developed in 1933, the association did not always give support, hoping that promises of relief would materialize.

So it was the milk pool which took the real initiative in organizing strikes in Wisconsin. As early as May, 1931, a writer to the official publication of the Central Cooperative Association had urged farmers to withhold milk from the market. It was not until 1932, however, that strike sentiment really spread among milk pool supporters. In May farmers attended various meetings at which milk pool spokesmen endorsed striking as one possible means of relief. During the summer the milk pool's president, Walter Singler, became an official of the Wisconsin Farm Holiday Association. In November at a two-day session of the milk pool, he strongly defended the idea of a strike, and his organization resolved to strike at the beginning of December. No strike came at that time, because the pool decided to wait a bit longer for possible relief from the new Congress convening in Washington.[17]

Under the pressure of increasingly desperate farmers, the milk pool could not wait too long for relief from Washington. Such desperation was reflected in Singler's statement that farmers urgently needed to decide whether or not they would save themselves by supporting a militant farm group. According to farmers, their sufferings had nearly reached the limit and immediate action was needed to avert dangerous conditions. As one letter writer said, the milk pool was best advised to alter the economic system before farmers became so desperate from "dreadful sufferings that a bloody revolution will be the result." If something did happen, such prophets intimated that farmers would be merely following the example of the revolutionary patriots of 1776 who had fought for freedom in behalf of the underdog. Instead of fighting the British Tories, the strikers were described as seeking freedom from the profiteers and monopolists. But the milk pool denied advocating violence and blamed its enemies and outsiders for any disorder during the strikes. If individual farmers were carried away by their militancy, however, it was intimated that failure to receive help had made them desperate beyond reason.[18]

As help came slowly, the milk pool finally moved toward the first of its three strikes in 1933. Singler said that he was tired of hearing "the farm strike called a bluff."[19] For about a week in February his organization cut milk deliveries to some degree in hope of obtaining $1.40 per hundredweight of milk regardless of its use. Road barricades, dumped milk, and tear gassing were a part of the strike which centered in the eastern counties. The strike activities ended when various farm organizations arranged a truce and the newly-elected Democratic Governor, Albert Schmedeman, promised to seek help from federal officials. But the milk pool strikers resolved to resume their activities if the new Democratic administration in Washington failed to provide satisfactory farm relief.[20]

[16] *The Wisconsin State Journal*, Aug. 23, 24, Sept. 2, 3, 1932; Jacobs, "The Wisconsin Milk Strikes," 30–31.
[17] *Farm Relief News*, 2:1 (May, 1931); *Waukesha* (Wis.) *Daily Freeman*, May 12, 1932; *The Milwaukee Journal*, May 13, 1932; *Milwaukee Sentinel*, May 11, 1932; *The Wisconsin State Journal*, Nov. 12, Dec. 1, 1932.
[18] *The Wisconsin State Journal*, Feb. 23, May 16, 19, 1933; *Marshfield* (Wis.) *News-Herald*, Aug. 31, 1932; *Appleton Post-Crescent*, May 12, 15, 1933.
[19] *The Milwaukee Journal*, Feb. 8, 1933.
[20] *The Capital Times*, Feb. 22, 1933.

Disappointed by government farm policies and persistently low prices, the milk pool again went on strike. This time, however, it did not expect to be alone, because the National Farm Holiday Association had directed plans for a national strike slated to begin on May 13. But, promised federal relief, the national organization did not go on strike. The Wisconsin Council of Agriculture also had first supported the strike plan and then changed its commitment for the same reason. The milk pool did not conceal its growing disappointment with Milo Reno and his organization: as one milk pool supporter said, Reno "slid out like an eel" when the time had come to give help in the February strike. Although some support came from members of farm groups like the Wisconsin Society of Equity and the Wisconsin Farmers Union as well as from labor groups like the Federated Trades Council and unemployed committees in Milwaukee, the milk pool really carried alone the burden of strike leadership.[21]

State officials expected the worst from the strikers. But they were not the only ones because, for instance, a jokester punned that "the Boston tea party days" were returning except for the color of the liquid. Before the strike began, Governor Schmedeman planned to close all plants receiving milk in the state and to reopen those with majorities of farmers opposed to the strike. When the National Farm Holiday Association announced its withdrawal from the proposed strike, the ban on milk delivery was retained only in certain areas, mainly in nineteen eastern counties where strike sentiment was most dominant. At the same time the governor ordered law enforcement agencies to make special preparations. Although they all were not on active strike duty, 2,496 national guardsmen were called out, and still other thousands of special deputies were hired. Extra equipment was ordered, including gas bombs from Washington. This action led newspapers to report that preparations had been made for a "bona fide war."[22]

Indeed, for six days the strike was reported as though military maneuvers were being conducted. The din of battle was heard most from Shawano, Outagamie, and Waukesha counties which were the scenes of the sharpest skirmishes between strikers and deputies. Headlines spoke of bombs, battles, and troop mobilizations, while pictures showed men dumping milk and guardsmen charging with bayonets. Discouraged by the show of force, a letter writer reported that his brother was in an unarmed group, dumping milk from several trucks and later stopped by guardsmen and deputies who lined up the strikers and "pounded hell out of them & I mean pounded."[23] After the battles ended, a national journal wrote,

> Little quarter was asked or given in last week's fighting. For six crowded days the guardsmen acting as deputies, the majority of them dressed in overalls, armed with riot sticks and gas bombs charged the picketing farmers. The guardsmen were repulsed in some instances but came back reenforced, finally to clear the roads.

It then continued,

> Strikers threw rocks, laid hands on anything that might serve for weapons, tossed back bombs that had not exploded, and thick clouds of smoke hung over the combatants.[24]

In these circumstances one farmer was killed when he was pushed off or fell from a truck, and other participants suffered from bodily blows and tear gas bombs. Besides, perhaps upwards of three hundred strikers were arrested, but most of them were subsequently released without penalty.

The strike ended at a meeting in Madison where milk pool representatives, not including Singler, met with Governor Schmedeman and other state officials. An estimated five thousand farmers roamed in the state capital while the conferees agreed on forming a committee to study dairy conditions and to propose relief measures which would be communicated to federal officials. The conferees also accepted the milk pool's repudiation of

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[21] Letter from Carl Oman to William B. Rubin, May 8, 1933, in William B. Rubin Papers; *The Capital Times*, Apr. 25, 1933; B. J. Gehrmann, "Whither Are We Going?" *The Equity News* (Madison), 28: 1 (June 1, 1933); *The Milwaukee Leader*, May 12, 13, 17, 18, 1933; *The Wisconsin State Journal*, May 13, 1933.

[22] *The Capital Times*, May 13, 14, 16–18, 1933; *The Wisconsin State Journal*, May 13-19, 1933; *Biennial Report [of] the Adjutant General of the State of Wisconsin for the Two Fiscal Years Ending June 30, 1934* (Madison, 1934), 11–12.

[23] Letter from L. D. Dempsey to William B. Rubin, May 17, 1933, in William B. Rubin Papers.

[24] *News-Week*, 1: 14 (May 27, 1933).

responsibility for the strike violence. When the newly-formed committee later reported in 1933, it emphasized the need for cooperative marketing and federal action to apply "the principle of average cost of production to agriculture . . . based on an American standard of living."[25]

In spite of such committees farm prices remained low, and strike sentiment persisted. Once again, plans were made for a national farm strike; and even Governor Schmedeman announced that he was for an "orderly and well conducted holiday" and announced no plans to patrol the roads or to call out special forces.[26] The National Farm Holiday Association started the strike in October, but the milk pool delayed joining lest it be left alone just as before. Then two days after the milk pool joined, the National Farm Holiday Association withdrew, expecting that state governors would find relief; but its Wisconsin branch rejoined the strike. Lasting over three weeks, the third strike in Wisconsin produced the bombing of cheese factories and the shooting of a picket before it petered out in mid-November.

Although the three strikes had an economic effect, it was difficult to measure their precise impact. The total cost of about $170,000 for using deputies and guardsmen in the second strike was a newspaper estimate based partly upon official data. Similarly, the dollar losses of undelivered or dumped milk could only be estimated. Guesses again could usually be made of the strikes' effect on milk prices. Under the threat of a new strike after the first one, state officials did persuade condenseries to raise prices paid to farmers; and milk dealers generally were probably hesitant to lower prices. During the third strike cheese prices probably "held up better" than they otherwise might have, but they declined sharply after the strike's end. Most evident was the fact that, in a negative sense, the strikes failed to have an economic impact, because no program was instituted to pay farmers according to the price formula of the milk pool.[27]

As the strikes failed to produce the desired prices, the milk pool turned to cooperative marketing and even political action after the second strike. Before the Central Co-operative Association began its meeting to form the milk pool in November, 1931, early arrivals took time to organize the People's Rural Party which made little headway. In 1933 milk pool supporters were reported talking informally about the need to form a new party for farmers and laborers. Then in 1935 the milk pool helped sponsor the organization of the Farmer-Labor Progressive Federation, which was affiliated with the Progressive Party formed in the previous year. Such sentiment for farmer-labor cooperation was strong in the Fox River area, which was also the center of the milk pool. Marketing, however, was the milk pool's main preoccupation after the strikes. Starting after the second strike in 1933, the milk pool contracted to market the milk of its members and used for a time a subsidiary which sold dairy products made from the milk of members who delivered to their own cooperatively or privately owned creameries. In April, 1937, the milk pool was marketing the output of fifty-five plants, mainly cheese factories; one year earlier it reported handling six per cent of all Wisconsin cheese. These marketing operations were hampered by the lack of capital and other difficulties which in 1940 caused the milk pool's decision to go into receivership and to liquidate its assets.[28]

In part, the milk pool's collapse came from the strong opposition of public and private groups who feared that new farm organizations endangered existing ones. Refused support by state agricultural officials in 1931, the milk pool was told by Joseph Beck, one

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[25] *The Capital Times*, May 19, 1933; *The Wisconsin State Journal*, May 19, 1933; Report of Governor Schmedeman's Dairy Committee, mimeographed (Madison, Nov. 14, 1933), 8, 10–11, 22, 44–45.

[26] *The Capital Times*, Oct. 20, 1933.

[27] *The Capital Times*, July 19, 1933; *The Wisconsin State Journal*, Mar. 16, 17, 1933; [R. K. Froker and H. H. Erdmann], *A Business Analysis*, 15; *Cheese Reporter* (Sheboygan Falls, Wis.), May 29, 1933.

[28] *The Capital Times*, Nov. 24, 1931; *The Wisconsin State Journal*, Jan. 12, June 3, 1933; *Farmer-Labor and Progressive Federation Principles, Platform and Constitution Adopted at Milwaukee, Nov. 30-Dec. 1, 1935* (n.p.,n.d.); Charles Herbert Backstrom, "The Progressive Party of Wisconsin, 1934-1946," doctoral thesis, University of Wisconsin (Madison, 1956), 115; *Your Problem!* (n.p., [1937?]); [R. K. Froker and H. H. Erdmann], *A Business Analysis*, 6–7; [Paul Weis], *Milk Pool Products Co-Operative Treasurer's Report for Twelve Month Period Ending April 30, 1936* (n.p.,n.d.), 1; *Green Bay* (Wis.) *Press-Gazette*, Aug. 3, 8, 1940.

of the state commissioners of agriculture and marketing, there were already too many organizations, and hence new ones would not be supported. Beck added, moreover, farmers ought to "make thorough inquiries of properly constituted agencies before joining a cooperative association which is being promoted outside the established organizations." He was speaking for the Wisconsin Council of Agriculture, which represented the established farm groups, and which, after meeting with a milk pool spokesman, had decided to warn farmers against "fly-by-night" organizations. In 1932 the Wisconsin Council of Agriculture endorsed legislation to restrain the establishment of cooperatives in communities where they already existed. After the strike in May, 1933, it denounced violence by a farm group and concluded that "the more stable existing organizations have justified their existence by rendering a service of value." Although its activities created such opposition, the milk pool also was at times the object of conciliatory gestures from the council and state farm officials.[29]

Among their charges against the milk pool, the critics questioned the character of the kind of people in it, especially in its leadership. They suspected that the leaders were out for personal gain and also stirred up farmers for the fun of doing so. Hence, they characterized the leaders as misleaders, agitators, radicals, racketeers, professional organizers, and political aspirants. They charged, moreover, the leaders had never milked cows or plowed land. According to one correspondent, Singler was not a farmer, but a dubious promoter who had been joined by "worn-out politicians . . . and radicals with a few labor leaders thrown in for good measure." He also stated that the strikers were mainly the "down and out of dairydom, young boys and hoodlums." Commissioner Joseph Beck intimated that Singler acted like a racketeer and "ballyhoo artist" who used his milk pool position as a meal ticket.[30] In reply, milk pool spokesmen questioned the character of their critics.

The critics next argued that the wrong kind of leaders purveyed dubious and risky ideas. Commissioner Beck thus denounced the milk pool leaders for spreading "half-digested schemes and plans," while the president of the Wisconsin State Grange accused Singler of promoting "dangerous ideas." In Madison a newspaper deplored that farmers were misled by "the extravagant promises" of Singler's enthusiasts. From Chicago another paper observed that the striking logically resulted from the "Red preaching" and the "radical ideas . . . turned out of the La Follette theory factory at Madison." Such critics often ended by saying that the pool's ideas were impossible, visionary, and futile.[31]

Inevitably, the critics said, bad ideas threatened to create disorder and even revolution. According to Governor Schmedeman, chaos was thus the only result of those who promised the millenium. Generally, the critics accused the strikers of causing anarchy, violence, bloodshed, and mob rule. One newspaper stated that the Singler group was trying to establish itself "as the government of Wisconsin," while another warned that "the forces of law and order" alone could cope with what seemed to be a "general riot and insurrection" in May, 1933. Not alone, a letter writer to still another newspaper argued that the strikers were defying government and "bringing on us revolution, the worst thing this country ever had." State officials also assumed that government was in danger, and so they justified the use of force against the strikers.[32]

From the critics' viewpoint, the strikes were based on an unfounded excessive feeling of desperation. Matters, they said, were not quite as bad as the strikers believed. One

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[29] *The Equity News*, 28:9 (July 1, 1933); *The Wisconsin State Journal*, Aug. 28, 1931; *Co-operative Marketing and Market Information*, Wisconsin State Department of Agriculture and Markets (Madison), 2:4 (July-Aug. 1931); 3:2 (May, 1932); *Farm Relief News*, 2:1, 2 (Sept. 1931); *The Badger Farm Bureau News* (Madison), 1:4 (Sept. 1931); 2:1, 4 (Sept. 1932).

[30] *Hoard's Dairyman* (Fort Atkinson, Wis.), 77:336 (July 10, 1932); 78:394 (Nov. 25, 1933); *The Wisconsin State Journal*, Apr. 19, May 16, Aug. 12, 1933; *Milwaukee Sentinel*, Feb. 19, 1933.

[31] *The Badger Farm Bureau News*, 1:4 (Sept. 1931); *Wisconsin Agriculturist and Farmer* (Racine, Wis.), 59:4 (Sept. 17, 1932); *The Daily Northwestern* (Oshkosh, Wis.), Feb. 21, 1933; *The Wisconsin State Journal*, Feb. 7, 1933; *Chicago Daily Tribune*, May 26, 1933.

[32] "The Agricultural Situation in Wisconsin," in Albert G. Schmedeman Papers, MS Division, State Historical Society of Wisconsin; *Stevens Point* (Wis.) *Daily Journal*, June 3, 1933; *The Milwaukee Journal*, May 11, 1933; *Milwaukee Sentinel*, May 18, 1933; *Appleton Post-Crescent*, May 10, 1933.

Wisconsin farm journal argued that there were "too many crepe hangers in proportion to the funerals," because the depression was really coming to an end, though slowly. If economic conditions had been bad, the critics also claimed that the immediate present showed definite signs of improvement. In trying to avert the strike of May, 1933, Governor Schmedeman assured farmers that a "definite upturn in prices" was evident. Others, like the Wisconsin Council of Agriculture alluded to the "unusual progress" made in obtaining government help. Such assurances of improvement were coupled with advice to maintain a "courageous patience that will restore confidence and progress." The governor was sure that better days were coming and that it was advisable to "continue our patience, and continue to build and not destroy." Otherwise, he and others warned that rash action might retard the progressive recovery.[33]

Desperate farmers, feared the critics, endangered what were termed the natural ecnomic laws that brought recovery. As one journal observed, unworkable schemes postponed "the natural laws of normal recovery," while a columnist advised "that natural forces are sad things to monkey with." More particularly, opponents of the milk pool believed that farm prices were determined by "natural laws of supply and demand" rather than by "arbitrary" government fiat or strike demonstrations. One of the state's agricultural commissioners agreed with the statement that "the law of supply and demand is inexorable in regard to milk marketing and the most you can ever hope to obtain is a fair market price for your product." The dean of the state college of agriculture insisted that cooperatives could not "maintain prices, for any considerable period, which are out of line with those warranted by supply and demand conditions." No doubt, such insistence on natural law was designed to reinforce the pleas for patience with the prevailing economic order.[34]

Yet, it was conceded that farmers were not the helpless pawns of natural economic forces. State and college agencies, with farm journals and organizations, repeatedly advised farmers to increase their income through more efficient management and marketing in the manner of private corporations and businessmen. Farmers were thus told to eliminate low-producing cows. Especially since World War I, they were urged to build cooperative marketing associations; and during the early 1930's, cooperatives were endorsed as "the only way out" for farmers by state agricultural and college spokesmen who were required by law to promote them. These cooperatives processed and distributed farm produce or bargained with private processors and distributors for the best prices. They tried to increase the returns to farmers by cutting marketing costs, for instance, through improved publicity and elimination of duplicate services. As the dean of the agricultural college said, cooperatives were "business organizations with problems essentially similar to those of other business corporations." Although organized as a cooperative, however, the milk pool did not satisfy these advocates of cooperative marketing, because of its proposals on prices to eliminate the risk of loss on the market.[35]

In spite of the fact that its cooperative ideas were spurned, the milk pool was given some credit at least for dramatizing the farmers' plight and their need for government help. As one Wisconsin economist said, the strike movement in the United States generally did not raise prices, but it dramatized the farmers' desperation. Besides, he added, it made clear the need to take farmers seriously and to end the causes of their distress lest

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[33] *Wisconsin Agriculturist and Farmer*, 59:4 (Aug. 20, 1932); *The Sheboygan* (Wis.) *Press*, May 11, Aug. 14, 1933; *The Daily News-Times* (Neenah, Wis.), Mar. 10, 1933.

[34] *Hoard's Dairyman*, 78:182 (May 10, 1933); *The Capital Times*, Apr. 10, 1933; *Appleton Post-Crescent*, June 29, 1932; Chris L. Christensen, Addresses and Statements, 1931, bound volume in University of Wisconsin, College of Agriculture library, Madison, 151.

[35] "General 'Mal-Conditions' in the Dairy Industry," 458; Chris L. Christensen, Addresses and Statements, 150-151; Chris L. Christensen, "Cooperation as a Stabilizing Force in Agriculture," *Cooperative Marketing Journal* (Richmond, Va.), 6: 121 (July-Aug. 1932); William Kirsch, "Cooperative Marketing in Wisconsin," *The Wisconsin Blue Book, 1931* (Madison, 1931), 31-47; *Hoard's Dairyman*, 78:166 (Apr. 25, 1933); *The Capital Times*, Aug. 3, 1932; Charles L. Hill, "Why State Markets Dept. Backs Some Co-ops; Not Others," *Farm Relief News*, 3: 2 (Jan. 1932).

more serious trouble occur.[36] Others noted that the strikers dramatized the need for a more united organization of the farmers. Their acceptance of the need for government action also came more readily under the strikes' impact. When strikes were threatened, editors thus wanted the postponement of such action in order to give government agencies time to implement their farm programs. But, they said, if relief did not come, farmers could strike "as a final expedient" to pressure for government action both at the state and federal levels.[37]

By the end of 1932, Wisconsin state officials extended their activity by adopting milk price control. Of course, they continued to promote cooperative milk marketing and conferred with milk dealers on prices in 1933. Price control stemmed from their desire to help farmers who might suffer from the price wars among the distributors of fluid milk and cream in Milwaukee. The state therefore issued regulations setting prices in Milwaukee and extended its control to other city markets under the Caldwell law of April, 1933. The new law permitted state officials to regulate the distribution of fluid milk in certain city markets, fixing wholesale and retail prices as well as the prices paid to farmers. But price control was not extended to shippers whose milk was sold for other than fluid use. Upheld by the courts in 1935, the Caldwell law was among the first such state laws in the United States.[38]

But more action was expected from government officials in Washington than in Madison. It was commonly assumed that dairy problems were national in character, and hence their solution required action in Washington. This assumption was based partly on the fact that about three-fourths of Wisconsin's dairy output was sold outside the state beyond the control of the government in Madison. Attending the President's Conference of Governors held at Washington in March, 1933, Governor Schmedeman stressed Wisconsin's inability to deal alone with farm prices. Similarly, his dairy committee emphasized that the problem of milk prices could be handled only on a broad front extending beyond Wisconsin.[39] Of course, there were those who doubted the wisdom of seeking government help, but in 1933 their voices were little heard above the many cries for help.

Urgently, as the strikes neared in 1933, farmers were asked to wait for federal help. Before the May strike began, for instance, the Wisconsin Council of Agriculture wanted it postponed until the administration acted in Washington; and Wisconsin's Senator F. Ryan Duffy said that there was no need for a strike in view of imminent federal legislation and promises made by the Secretary of Agriculture. These pleas were reinforced by pressuring federal officials through editorials, telegrams, letters, and delegations asking for help. One newspaper argued that government experiments should be tried to find immediate farm relief and that federal legislation should not be deferred, lest an excuse be given for striking. The state legislature memorialized Congress for the enactment of a law to ensure farm prices in excess of the cost of production. Seeking help, Wisconsin's congressional delegation as well as Governor Schmedeman and his representatives visited various officials in Washington. During and after the strikes, the governor kept his pressure on the federal administration and promised that he stood "ready at all times personally or through representatives to keep the case of the Wisconsin farmer adequately before the National administration." Although it too sent representatives to Washington, the milk pool was more effective, indirectly at least, in securing federal

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[36] Benjamin Horace Hibbard, "Who Gets the Milk Profits?" *The American Mercury*, 32:164 (June, 1934).

[37] *The Sheboygan Press*, Apr. 21, 1933; *Wisconsin Rapids* (Wis.) *Daily Tribune*, Feb. 23, 1933.

[38] Francis A. Staten, "Regulation of Milk Marketing in Wisconsin," *The Journal of Land & Public Utility Economics*, 9: 317-322 (Aug. 1933); R. K. Froker, "State Control of Milk Prices in Wisconsin," Temporary National Economic Committee, *Investigation of Concentration of Economic Power*, No. 32: *Economic Standards of Governmental Price Control*, 76 Cong., 3d Sess. (Washington, 1941), 163.

[39] *Wisconsin's Problems: Presented at the President's Conference of Governors, March 6, 1933, by Albert G. Schmedeman, Governor of Wisconsin*, mimeographed (n. p., n. d.), 17; Report of Governor Schmedeman's Dairy Committee, 23.

attention, because its strikes increased the general demand for government action.[40]

On May 12, 1933, the day before the national farm strike was slated to begin, President Franklin Roosevelt signed into law the Agricultural Adjustment Act from which Congress had eliminated a "cost of production plus" amendment supported by both Wisconsin senators. Under the new law, which was described as hurling "congressional defiance" at the strike planners, the United States Department of Agriculture could make payments and marketing agreements to help raise farm prices. Almost immediately after the law's passage, the Secretary of Agriculture was reported seeking ways to use it for the benefit of Wisconsin dairymen; and in 1934 an appointee from Wisconsin became head of the dairy section in the special agency created to administer the law for the Department of Agriculture. During the summer of 1933 the department started making butter and cheese purchases. In 1934 such purchases were also made from the milk pool, although by another government agency. The law ran into much opposition over proposed production controls and was eventually declared unconstitutional. Nonetheless, it was the beginning of the extension of federal activity in agriculture under the New Deal.[41]

If nothing else resulted, the milk strikes and the milk pool dramatized the farmers' plight in 1933. Striking farmers made the nation more farm-minded than before. Besides, they made their fellow citizens seek increased federal action as a "safety valve" for the strike pressures created in Wisconsin. In other words, the growth of federal activity was partly due to the activities of the Wisconsin dairy farmers on strike.

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[40] *The Wisconsin State Journal*, Feb. 23, Apr. 3, 7, 8, 10, 13, 25, May 28, 1933; *Congressional Record*, 77 (pt. 1):111 (Mar. 9, 1933; "The Wisconsin Agricultural Situation," dated Sept. 20, 1933, in Albert G. Schmedeman Papers.

[41] *The Capital Times*, May 9, 10, 12, 1933; *Milwaukee Sentinel*, May 19, 1933; *Wisconsin Agriculturist and Farmer*, 61: 1 (Mar. 17, 1934); letter from A. R. Sanna to Paul Weis, May 4, 1934, in present writer's possession; John D. Black, *The Dairy Industry and the AAA* (Washington, 1935); Theodore Saloutos and John D. Hicks, *Agricultural Discontent in the Middle West, 1900-1939* (Madison, 1951), 468-469, 478-479.

A STOUT MAN TO BEAR ON

Since the construction of the New York and Erie Railroad through this county, large quantities of milk are sent to New York, though those only who live near the line of the road can avail themselves of this source of profit; so butter is the main dependence of the dairyman. The annual yield per cow is from 150 to 200 lbs. . . . The average price of butter with us is from 18 to 21 cents per lb. In this county we churn the milk, using large churns, which hold one or two barrels. We use horse, sheep, or dog-power, and water-power where we can. . . . in very many a sheep will perform all the labor, and fatten, while churning the milk of 15 or 20 cows. . . . our butter is sent off weekly . . . in tubs of from 13 to 50 lbs, though many pack down in large firkins, and keep till fall. A very important item in the profits of the dairy is the pork made on the buttermilk, averaging, say $4 per cow; also the calves, which are sold at four weeks old, at $3.50 to $5 each. (written ca. 1850 by W. W. Jackson, Orange County, New York).

The railroad from Toledo to Cleveland has just been opened, which gives us a continuous rail route from Chicago to the Atlantic cities. The route will soon be completed as far as the Mississippi river; and buyers are already here for our fat sheep to be sent East on the new thoroughfare. A brighter era dawns upon us. Our turkeys and chickens may figure on a Christmas table in Gotham; our choice fruits may take a front seat in some of their fruit stalls; we hear the result of a general election, two thousand miles from home, by the time we have canvassed our own votes. We realize, now, what would have been called visionary, a few years ago, to dream of. (written in 1852 by Chester Hunt, Somerset, Michigan).

Quoted by Dorothy R. Rush in "A Stout Man to Bear On," *Power to Produce* (USDA: The Yearbook of Agriculture, 1960), p. 16.

Acclimatization of Citrus Fruits in the Mediterranean Region

ALFRED C. ANDREWS

Among the basic literature on the early history of citrus fruits[1] is the monographic study by Samuel Tolkowsky,[2] which appeared in 1938 and is regarded as the standard reference on the subject. While Tolkowsky's work greatly advanced our knowledge of the westward migration of citrus forms, he both misused and misinterpreted some of his sources, especially the classical ones, and also failed to use all available evidence. Moreover, factual evidence which has since accumulated indicates that his conclusions stand in need of revision. Consequently, to arrive at a clear and authentic picture, it is necessary to re-evaluate the problem and re-appraise the evidence. The general approach in this article is to summarize Tolkowsky when he is on sound ground, insofar as may be necessary to maintain a clear overall view, and to present detailed evidence when he is in error.

The original citrus-type vegetation was mainly centered apparently in the Himalaya region and adjacent south-central China, subsequent dispersal through India, China, Japan, and other lands being accompanied by local differentiation.[3] In general, wild forms of the orange and the shaddock predominate in China, Japan, and Cochin-China, while in India the citron and its close relatives, the lemon and the lime, are more common.[4]

The citron, *Citrus medica cedra* Ferr., was carried westward from India in the wake of commercial and military activity, presumably roughly along the isotherm of its natural range. Persia and Media lay immediately westward, and reports of Greek botanists who accompanied Alexander on his campaigns establish that it was well acclimatized in that area in the middle fourth century B.C. The fact that the terms "Median fruit" and "Persian fruit" were used does not attest acclimatization in Persia before 500 B.C. Tolkowsky reasoned,[5] rather weakly, that there must have been a well established tradition that the citron tree was commonly cultivated in Persia in the period of the Medes (who ruled Persia from the late seventh to the middle of the sixth century B.C.). However, Persia and Media were separate geographical, if not political, entities at the time the botanists made their report; and they merely recorded that they found the tree under common cultivation in both areas. Establishing an early date of ac-

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[1] A. Aloi, *Gli agrumi* (Milan, 1900); [Ballon], *Nouveau traité des oranges et citronniers* (Paris, 1692); E. Bonavia, *The cultivated oranges and lemons etc. of India and Ceylon* (2 vols., London, 1888); Hugo Bretzl, *Botanische Forschungen des Alexanderzuges* (Leipzig, 1903), 207-217; Alphonse de Candolle, *Origin of Cultivated Plants* (New York, 1886), 178-183; Gio. Domenico Civinini, *Della storia degli agrumi. Lezione accademica* (Florence, 1734); J. Eliot Coit, *Citrus Fruits* (New York: Macmillan, 1925); Rafael Font de Mora, *El naranjo, su cultivo y explotacion* (Madrid, 1922); Fournier, in Daremberg-Saglio-Pottier, *Dictionnaire des antiquités grecques et romaines* (Paris, 1877-1919), 1:1152; Georges Gallesio, *Traité du citrus* (Paris, 1811); Victor Hehn, *Kulturpflanzen und Haustiere* (8th ed., Berlin, 1912), 442-455; H. Harold Hume, *Citrus Fruits and Their Culture* (New York: Macmillan, 1915), and *The Cultivation of Citrus Fruits* (New York: Macmillan, 1926); Sebastian Killermann, "Die Zitronen and Orangen in Geschichte und Kunst," *Naturwissenschaftliche Wochenschrift*, 15: 201-208 (1916); A. E. Kozhin, "Pomerantsevye i razvitie ikh kul'tury v SSSR" (Citrus plants and their cultivation in the USSR) (in Russian with English summary), *Bulletin of Applied Botany, Genetics, and Plant Breeding*, 26: 241-540 (1931); Giuseppe Lamzoni, *Citrologia seu' Curiosa Citri Descriptio* (Ferrara, 1690); Victor Loret, "Le cedratier dans l'antiquité," *Annales de la Société Botanique de Lyon*, 17: 225-271 (1891); A. F. Magerstedt, *Die Obstbaumzucht der Römer* (Sondershausen, 1861), 142-144; Olck, in Pauly-Wissowa-Kroll, *Realencyclopädie der classischen Altertumswissenschaft* (Stuttgart, 1894-__), 3: 2612-2621; A. Risso and A. Poiteau, *Histoire naturelle des orangers* (Paris, 1818); Antonio Targioni-Tozzetti, *Cenni storici sulla introduzione di varie piante nell' agricoltura ed orticoltura toscana. Nuova ristampa per cura del Dott. Eugenio Baroni* (Florence, 1899); Herbert J. Webber and Leon D. Batchelor, eds., *The Citrus Industry: History, Botany, and Breeding* (Berkeley: University of California Press, 1943), Vol. 1.

[2] Samuel Tolkowsky, *Hesperides, a History of the Culture and Use of Citrus Fruits* (London: J. Bale, Sons & Curnow, Ltd., 1938).

[3] Cf. A. I. Luss, "Pomerantsevye IAponii i sosednikh stran iugovostochnoi Azii," *Bulletin of Applied Botany, Genetics and Plant Breeding*, 26: 141-240 (1931); Tolkowsky, *Hesperides*, 4.

[4] Cf. N. I. Vavilov, in Charles Parain, "L'origine des plantes cultivées," *Annales d'Histoire Economique*, 1935, 628; Tolkowsky, *Hesperides*, 21.

[5] Tolkowsky, *Hesperides*, 45.

climatization in Persia must depend upon other evidence.

One piece of Assyrian sculpture represents, apparently as a great rarity or something highly esteemed, a pineapple-shaped object identified by E. Bonavia [6] as a fingered citron. Tolkowsky [7] so accepts it. Another represents three cone-like fruits taken by Bonavia [8] to be ordinary citrons. In addition, excavations at the Sumerian city of Nippur have yielded a number of seeds of uncertain date identified as belonging to the genus *Citrus,* possibly a variety of citron, lemon, or lime, rather than the orange.[9] Sanskrit *matulungaka* (citron), in the shorter form *matalunga,* is the source of Assyrian *iltakku* [10] or *ildaqqu* (also called *adaru*), a term for a vegetable drug and probably also for the citron.[11] Thus both artifacts and nomenclature suggest that the tree was well known in Mesopotamia.[12]

Further evidence, while meagre, indicates that the tree was introduced from India, either directly or by way of Persia and/or Media, with successful acclimatization. It is puzzling that Alexander's botanists reported it only for Persia and Media, since presumably it was under cultivation in Mesopotamia at an early date and therefore was still under cultivation there at the time of Alexander's conquest; but the evidence is valid enough to justify the conclusion that the Assyrians actually raised the tree and made it productive.

Loret [13] believed that citrons were among the fruits depicted on the walls of a room in the Temple of Karnak, which are covered with paintings representing various trees reported to have been brought back from Asia by Thutmose III, ca. 1500 B.C., on his return from his Syrian campaigns. Loret also thought that he could identify as citrons several fruits which he found in tombs of the same period and which closely resembled those depicted at Karnak. He therefore concluded that the citron tree was grown in Egypt as early as the second millennium B.C. Tolkowsky [14] properly considered these identifications too dubious to justify such a conclusion. Loret [15] elsewhere expressed the view that the citron tree was apparently introduced into Egypt from Asia in the 18th dynasty, i.e., ca. 1500 B.C., commenting that its Coptic names, *ghitre, djedjre, ketri,* and *kithri,* certainly go back to an ancient Egyptian name. Bonavia [16] also thought that he had found evidence in a wall painting from El-Kab that the fingered citron was known to the ancient Egyptians. But Tolkowsky [17] also properly regarded this identification as unconvincing. Bonastre [18] identified a specimen in the Louvre from Egypt as *Citrus medica* L. Loret and Poisson [19] identified this specimen with conviction as *Citrus limonum,* but questioned its authentic antiquity. Hence, the evidence for early acclimatization in Egypt is very weak.

All scholars who concerned themselves with the history of citrus fruits before Tolkowsky assumed that the Jews first became acquainted with the citron in Mesopotamia during their Babylonian captivity, and that when they were allowed to return home by the decree of Cyrus in 539 B.C., they took the fruit with them and introduced it into Palestine. This view is based upon the assumption that the *peri ets hadar* prescribed for the Feast of the Tabernacles was from the start the citron. The ceremony was connected with occupation of the land of Canaan and was celebrated there for the first time by the Israelites, who probably adopted it from the Canaanites. It was a harvest festival, with an offering of products. Although a very old rite, some details are of more recent date, which tends to destroy the validity of this viewpoint.

Tolkowsky [20] maintains that the first attempts to raise the citron in Babylonia were

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[6] E. Bonavia, *Flora of the Assyrian Monuments* (Westminister, 1894), 66, 67, 72.

[7] Tolkowsky, *Hesperides,* 42.

[8] Bonavia, *Flora,* 68.

[9] Tolkowsky, *Hesperides,* 42.

[10] R. C. Thompson, *The Assyrian Herbal* (London, 1924), vii.

[11] R. C. Thomson, *A Dictionary of Assyrian Botany* (London: British Academy, 1949), 312. In his *Assyrian Herbal* (x, xix, 182, 183) he expresses the view that it might be the lemon or the lime. Cf. also Tolkowsky, *Hesperides,* 41.

[12] R. C. Thompson, *Dictionary,* 313.

[13] Loret, "Le cedratier," 225-271.

[14] Tolkowsky, *Hesperides,* 44.

[15] Victor Loret, *La flore pharaonique,* (2d. ed., Paris, 1892), 102.

[16] Bonavia, *Flora,* 70-71.

[17] Tolkowsky, *Hesperides,* 42.

[18] *Journal de Pharmacie,* 14: 433 (1828).

[19] *Recueil de Travaux Relatifs à la Philologie et à l' Archéologie Égyptiennes et Assyriennes,* 17: 194 (1895).

[20] Tolkowsky, *Hesperides,* 51-58, 62.

made by Alexander's botanical experts about 300 B.C. The first mention of *peri ets hadar* is in Leviticus 23:40; hence, it must have been introduced into the Pentateuch after 445 B.C. Tolkowsky argues that this obviously foreign element crept into the ritual and later received official sanction; but it could not have been the citron, since the date precedes the cultivation of the citron in Babylonia and other lands to the west and south. He further argues that the phrase *peri ets hadar* means "the fruit of the *dar* tree" and that *dar* is the Sanskrit word for tree, denoting the holy tree, namely, the giant cedar of the Himalyas, *Cedrus deodara*. The Persians, he says, borrowed from the Indians both the cult of the tree and its name, calling it *divdar;* so *peri ets hadar* means "the fruit of the cedar tree," i.e., the cedar cone.

This was used in Babylonian ritual in connection with a water libation. Tolkowsky believes that the Jews during their stay in Babylonia adopted the use of the cedar cone as a part of a water libation ceremony. He says that the earliest documentary evidence of the citron in Jewish sources is representation of the fruit on coins issued by Simon the Maccabee in 136 B.C., and believes that Simon in that year substituted the citron for the cedar cone in the ritual. He further argues that since every member of the congregation had to bring his own citron with him to the Temple, the tree must have been commonly raised in Palestine; hence, the complete acclimatization of the tree in Mesopotamia and the maritime plains of Syria and Palestine must have been accomplished in the comparatively short time of a century and a half.

It is further argued that since the principal citrus-growing centers in Palestine and Syria were, and still are, located around those towns which Alexander's successors had within a few years converted into real Greek cities, the Greeks initially were the principal active agents in the acclimatization of the tree and dissemination of its culture in countries around the eastern Mediterranean. But the adoption of the citron as an indispensable requisite of Jewish ritual more and more rendered the Jews the transmitters of citron culture to their numerous colonies along the Mediterranean. In Palestine, in particular, the fruit became cheap and common, and sold in the second century A.D. for about the same price as a fig and twice that of a pomegranate.[21]

This argument is indefensible in several particulars. First, the Jews were ultra-conservative in religious ritual; and the shift from cedar cone to citron, despite a superficial resemblance, is so radical that it cannot be assumed without strong supporting evidence. Tolkowsky frankly conceded ignorance of the reasons for the shift. Second, the concentration of citrus culture in the vicinity of Graecized cities in Syria and Palestine was entirely fortuitous. There is no acceptable evidence that the Greeks played a role of any importance in the acclimatization of the citron tree or the dissemination of its culture. In a parallel case, the westward spread of apricot culture, the tree was introduced from Persia and Babylonia into the general region of Syria, but remained unknown to the Greeks and was introduced from this region into Italy probably shortly before the middle of the first century A.D. Even the Greek name for the apricot was borrowed from Latin. Third, the actual source of *hadar* is probably Assyrian *adaru* (citron),[22] attesting direct borrowing from Mesopotamia. Moreover, of the two known Hebrew terms for the citron, *ethrog* and *atrunga,* the former, the literary term usually used by the rabbis, is probably a borrowing of Assyrian *iltaqqu* (citron), and the latter, the older term and the one generally used by the common people, is probably a borrowing of Persian *turunj* (citron).[23] It is therefore clear that the *peri—ets hadar* was from the beginning the citron, and that it was known to the Jews much earlier than Tolkowsky postulates. It is true, as Tolkowsky says, that the use of the citron in ritual tended to make the Jews transmitters of its culture; but since the incorporation of the citron in ritual long preceded the conquests of Alexander, the Greeks played practically no role in that dissemination. The Jews were the primary agents.

This brings us to the problem of Greece,

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[21] *Idem,* 62.

[22] Thompson, *Dictionary,* 314; Emmanuel Löw, *Aramäische Pflanzennamen* (Leipzig, 1881), 46.

[23] Thompson, *Dictionary,* 314.

where the citron was apparently introduced via two routes, the first by way of Ionia and Athens. Since Greeks were traveling and living in Persia and Media as early as the sixth century B.C., some knowledge of the citron must have reached Greece in that period; but a long time elapsed before citrons appeared on the Athenian market. Athenaeus[24] cites from Antiphanes, a foreigner who came to Athens and began to produce plays in 388 B.C., the following comic fragment: "A. Come, take these fruits, my sweet. B. They are fine indeed. A. Fine? Good God, I should say so! This seed just recently arrived in Athens from the Great King [of Persia]. B. I thought you were going to say that they came from the Hesperides, since there are only three of them. A. The fair is rare always, and everywhere dear." Part of this passage is repeated almost verbatim by Eriphus,[25] a later imitator of Antiphanes. Athenaeus comments on these passages: "If anyone can contradict this and show that this does not apply to the fruit we now call citron, let plainer evidence be cited."[26]

There has been some inclination to identify these fruits from Persia as citrons on the ground that Antiphanes and Eriphus identify them with the Golden Apples of the Hesperides.[27] It is true that Juba II,[28] King of Mauretania, ca. 50 B.C. to 23 A.D., identified the Golden Apples as citrons, as did Martial,[29] active in the second half of the first century A.D. Pamphilus of Alexandria,[30] active in the middle first century A.D., relates that in Sparta people set before the gods certain fruits, called Apples of the Hesperides, which had a pleasant odor and were not good to eat. Because of the odor and alleged inedibility, these were probably citrons, even though Athenaeus cites this passage in his chapter on apples and quinces rather than in the one on citrons. On the reverse of three Roman coins of the second century A.D., Heracles is represented with a young tree which appears to be a citrus rather than an apple or a quince.[31] Later authors[32] also identify the Golden Apples as citrons.

It is accordingly clear that, at least as soon as the early first century A.D., the Golden Apples of the Hesperides were believed to be citrons, and that this belief persisted. But there is convincing evidence that in the early period they were believed to be quinces. The "Twelve Labors" of Heracles are represented in the twelve metopes of the Temple of Zeus at Olympia in the Peloponnesus, completed about 450 B.C. One shows him winning the Golden Apples of the Hesperides, and the fruits he is about to receive from Atlas are quinces, not citrons. The Farnese Heracles is a copy of a statue by Lysippus carved about 350 B.C. and holds three quinces in one hand.[33] It is accordingly clear that, at least as late as the middle fourth century B.C., the Golden Apples were quinces, but became citrons some time between that date and the early first century A.D. But the crux of the matter is that obviously neither Antiphanes nor Eriphus indicates that the fruits from Persia were the Golden Apples. The girl in the comedy jestingly suggests the possibility merely because there were only three of them, the precise number of golden apples brought back from the Hesperides by Heracles. The identification rests solely upon the land of origin, rarity, and dearness; and the evidence on the shift of identification of the Golden Apples merely attests that some time between the fourth century B.C. and the first century A.D. the citron became well enough known to make this transfer possible.

The earliest detailed description of the tree and its fruit is given by Theophrastus,[34] who refers to it only as the "Median fruit" (*melon Medicon*) or "Persian fruit" (*melon Persicon*). In the course of a discussion of plants peculiar to Media and Persia he says:

This tree has a leaf similar to and almost identical with that of the *andrachne* (*Arbutus andrachne* L.),

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[24] *Deipnosophistae* 3.84.b.
[25] In Athenaeus *ibid.*
[26] *Deipnosophistae* 3.84.d.
[27] Cf. Josef Murr, *Die Pflanzenwelt in der griechischen Mythologie* (Innsbruck, 1890), 59.
[28] In Athenaeus *Deipnosophistae* 3.83.b.
[29] *Epigrammaton libri* 13.37.
[30] In Athenaeus *Deipnosophistae* 3.82.d-e.
[31] Tolkowsky, *Hesperides*, 73 and Figures 8-10.
[32] E.g., Anon. *De citro* in Baehrens, *Poetae Latini Minores* (Leipzig, 1879-86), 4: 349; *Corpus Glossariorum Latinorum*, 2: 315.24; 3: 26.22; 358.75; 442.9; 562.69.
[33] Tolkowsky, *Hesperides*, 72–73 and Plates XIII, XIV, and XV.
[34] *Historia plantarum* 4.4.2-3 (*exc.* Athenaeus *Deipnosophistae* 3.83.d-f); cf. Vergil *Georgics* 2.126-135; Pliny *Naturalis historia* 12.15,16.

but has thorns like those of the *apios* (the wild pear, *Pyrus amygdaliformis* Vill.) or the *oxyacanthos* (the fire-thorn, *Cotoneaster pyracantha* Spach.), except that they are smooth and very sharp and strong. The fruit is not eaten, but it is very fragrant, as is also the leaf of the tree; and if the fruit is put among clothes, it keeps them from being moth-eaten. It is also useful when one has drunk deadly poison, for when it is administered in wine, it upsets the stomach and brings up the poison. It is also useful for sweetening the breath, for if one boils the inner part of the fruit in a sauce and squeezes it into the mouth in some other medium, and then inhales it, it makes the breath sweet. The seed is removed from the fruit and sown in the spring in carefully tilled beds, and it is then watered every fourth or fifth day. As soon as the plant is strong, it is transplanted, also in the spring, to a soft, well-watered site, where the soil is not too fine, for it prefers such places. And it bears its fruit at all seasons, for when some have been gathered, the flower of others is on the trees and is ripening others. Of the flowers, as I have said,[35] those which have a sort of distaff [i.e., the pistil] projecting from the middle are fertile, while those which do not have this are sterile. It is also sown, like date-palms, in pots punctured with holes. This tree, as has been remarked, grows [only] in Media and Persia."

Theophrastus' use of the periphrase *melon Persicon* caused considerable confusion in both ancient and modern times. Some scholars associated it with the *persea* of Egypt (*Mimusops Schimperi* Hochst.), and others confused it with the peach, which later was generally known as the "Persian fruit." But Theophrastus' description is too accurate to leave any doubt that he is discussing the citron.

Loret[36] concluded from the precision of Theophrastus' account that he wrote upon the basis of personal observation and that the citron was already under cultivation in the third century in Greece. To disprove this contention, it is necessary only to point out that Theophrastus says specifically that the tree was peculiar to Media and Persia. The exactness of his account is almost certainly due to the fact that he excerpted the reports of Greek botanists who accompanied Alexander on his campaigns. These reports, long inaccessible at Babylon, became available not long before he embarked on the composition of his work on systematic and geographical botany. Half a century earlier, as already pointed out, Antiphanes represented a young man as saying to his girl, "This seed (*sperma*) recently came to Athens from the Great King." The use of the term "seed" in this context, as Tolkowsky notes,[37] leaves little doubt that the reference is to citrons sent from Persia, not to seeds sent from Persia for the propagation of trees, as Loret assumed, as well as Civinini, Risso and Poiteau, and Targioni-Tozzetti.[38] Furthermore, the attention which Theophrastus devotes to uses made of the fruit does not attest that it was either cultivated or generally utilized in Greece; for these observations were certainly a part of his source. Nor can one argue, as Tolkowsky does,[39] that since Theophrastus customarily describes unusual plants, his failure to describe the citron in his discussion of Greek flora is evidence that its appearance was familiar in Greece in his day. On the contrary, the fruit may well have been so uncommon in the Athenian market that he had no opportunity personally to examine one.

This brings us to the second route by which the citron reached Greece. Theophrastus used only a roundabout phrase for citron; but there are traces of a more specific term, perhaps of Semitic origin. Diphilus of Siphnos (third century B. C.) speaks of *Persica mela*, called by some *Persica coccymela* (the second element generally a term for cultivated plums). The grammarian Aristophanes (second century B. C.) reports that among the Lacedaemonians *coccymela* were known as *Persica oxymala* (Persian sour fruit), these being what others called *adrya*. Schweighäuser suggested supplying "Persian" in thought before *coccymela* as well, which would bring the statement into harmony with that of Diphilus. Gulick suggested that *adrya* might be a borrowing of Hebrew *ethrog* (citron), although it may come rather from Hebrew *atrunga* (citron), the older form and the one more generally used by the common people.[40] Hesychius defined *oxymala* as *coccymela* and *adrya* as a Sicilian term for *mela*, called *acrodrya* by the Attics. Appar-

[35] *Historia plantarum* 1.13.4.
[36] Loret, "Le cedratier," 228.
[37] Tolkowsky, *Hesperides*, 47.
[38] Loret, "Le cedratier," 236, 247; Civinini, *Della storia*, 26; Risso and Poiteau, *Histoire naturelle*, 154; Targioni-Tozzetti, *Cenni storici*, 154.
[39] Tolkowsky, *Hesperides*, 51.
[40] In Athenaeus *Deipnosophistae* 3.82.f; 3.83.a, and annotations.

ently a Doric term of Semitic origin is involved here.

The Dorians had close commercial relations with Cilicia, Syria, and Palestine. It has already been pointed out that the citron was acclimatized in Palestine early and that the Jews became transmitters of its culture. It was so extensively raised in that general area in the first century A. D. that Dioscorides of Cilicia[41] could speak of it as a fruit familiar to everyone. It, therefore, would not be surprising if citrons were brought to the Peloponnesus in the third century or even earlier, either directly from Palestine or via Cilicia, and brought a Semitic name with them.

This evidence tends to establish the presence of citron fruit in the Peloponnesus and to suggest the route by which it got there, but in no greater degree than the account of Theophrastus does it prove actual acclimatization of the tree. The specific name which the Greeks later used for the citron was borrowed from Latin, and not one single writer on citron culture in the early Christian era indicates that it was being carried on in Greece.

It is difficult to establish either the time citron trees were introduced into Italy or their immediate provenance on the basis solely of the ancient authors. Vergil, the first Latin author of established date to mention it specifically, in 35 B. C. described it as follows:

> Media bears the bitter juices and lingering taste of the blessed fruit, than which no other is more efficacious when ruthless stepmothers have poisoned drinking-cups and have mixed herbs with baneful spells. It brings help by driving the black poison from the body. The tree is large and in appearance closely resembles the laurel, and but for the odor which it widely diffuses it would be a laurel. Its leaves are not dislodged by winds; the flower is particularly tenacious; the Medes banish bad breath with it and cure themselves of persistent asthma.[42]

Tolkowsky[43] maintains that the beautifully realistic description which Vergil gives of the tree creates the impression that he had seen it in actual growth; but this conclusion should not be inferred, for the passage, as a whole, gives the impression that Vergil regarded the tree as peculiar to Media; hence, he did not knowingly observe it himself. The accuracy of his description is probably due to the use of reliable botanical sources. Pliny[44] about 70 A. D. declared that the *nata Assyria malus* would not produce fruit elsewhere; averred that the citron tree, used to beautify homes, bore a fruit whose odor and bitterness were repugnant to some people, but esteemed by others; and alleged that the citron tree was propagated from seeds or cuttings, although only in warm locations. His most complete account, based on Theophrastus, runs as follows:

> The Assyrian fruit, which some call Median, is an antidote for poisons. Its leaf is like that of the strawberry-tree, but with thorns running in between. The fruit is notable for the fact that it is not eaten and has a strong odor, as also do the leaves, which impregnates clothes stored with them and keeps away harmful insects. The tree itself bears fruit continuously, some dropping off, others ripening, and still others budding. Peoples have tried to introduce the tree into their lands in clay vessels because of its medicinal efficacy, providing breathing for the roots by making holes in the vessels; . . . but except among the Medes and in Persia it has refused to grow. This is the fruit whose pips we have related Parthian nobles boiled in foods in order to eliminate bad breath. No other tree is so highly praised in Media."[45]

In about the same period as Pliny, Petronius[46] represents Trimalchio as boasting that his estates produced everything he needed—wool, citron trees, pepper; but the patent absurdity of the extravagant boast about pepper throws equal doubt on the citron trees, despite Tolkowsky.[47] Solinus,[48] a third century compiler, like Pliny, asserted that fruitless attempts had been made to raise the tree

[41] *De materia medica* 1.115.5 W.

[42] *Georgics* 2.126-136 (cf. note of Servius on this passage).

[43] Tolkowsky, *Hesperides*, 85.

[44] *Naturalis historia* 16.135; 13.103; 17.64.

[45] *Idem* 12.15-16. Tolkowsky (*Hesperides*, 87) falls into serious error regarding this passage, maintaining that Pliny in his introduction to it (12.14), as if to dispel all doubt that what he intends to say applies to current conditions in Italy, says: "In regard to fruit trees, I shall speak of those which have already begun to become naturalized with us." But Pliny actually says: "Imported trees, comprising cherries and peaches and all those which bear Greek or [other] foreign names, but which have begun to be naturalized, will be discussed among the fruit trees. In the present section, we shall run through the foreign trees, beginning with the one which is especially healthful [medicinally]." He then proceeds to do precisely that, taking up first the citron, then other foreign trees for the duration of the book.

[46] *Satiricon* 38.1. It should be noted that his *cedrae* could be cedars.

[47] *Hesperides*, 88.

[48] 46.6.

in other regions, but that it prospered only in Persia. Solinus, however, was such an unobservant individual that he was capable of being oblivious to a citron tree growing in his neighbor's backyard.

The agricultural writers of the period present some evidence that the citron tree may have been under cultivation in Italy in the early imperial period. Cato in the second century B. C. understandably made no allusion to citron culture, since the tree was almost certainly alien to Italy in his period. Diophanes of Nicaea, a Roman authority on husbandry cited in the *Geoponica,*[49] perhaps lived in the period of Cicero. He is quoted as saying (if he actually is the author of the statement) only that the citron hardly tolerates grafting because of the thinness of its bark, which implies that the tree was not raised independently and only with great difficulty by grafting, and for an example of successful grafting he was forced to cite Didymus of Alexandria. Vergil in 35 B. C. regarded the citron tree as peculiar to Persia. Varro's *Rerum Rusticarum,* published in 37 A. D., contains no reference to citron culture. Sotion, cited in the *Geoponica,*[50] who may have lived in the early first century A. D., comments only on preservation of the fruit; and there is no indication that his statement applies to Italy. Columella was active probably about the middle of the first century A. D. and makes no allusion to citron culture.

Pliny's statement that the tree would grow only in Persia stems from Theophrastus and does not apply to contemporary conditions in Italy. But his assertion that it would not produce fruit outside of Persia probably came from a more recent source, and his comments on the use of the tree as an ornamental and on its propagation are probably nearly contemporaneous. If one bears in mind Pliny's haphazard method of compilation, such contradictions are no occasion for surprise. The earliest author to comment on the cultivation of the citron tree in Italy as an economic plant is Florentinus, probably active in the period 222-235 A. D., if the excerpt from him cited in the *Geoponica*[51] is authentic. There is reliable evidence in Palladius[52] that citron culture was well established in Italy in the fourth century, especially in the vicinity of Naples. In the era of Diocletian the citron was still an expensive fruit;[53] however, it must be kept in mind that prices in his Edict were based mainly upon conditions in the East.

Archaeological evidence sheds some light on the problem. The wall paintings at the Villa of Livia at Prima Porta, constructed about 38 B. C., differ sharply from the typical contemporary Hellenistic mythological and idyllic art. The originator was a Roman painter named Ludius, famous for having introduced a sense of complete reality into this type of pictorial composition. A tree in one of the paintings is apparently a citron, but with quinces for fruit. As Tolkowsky says, it is reasonable to assume that the tree grew in Livia's garden, but did not produce fruit. A relief on the tomb of the Haterii on the Via Labicana, built about 90 A. D., represents quinces and citrons, both with leaves and still attached to their respective branches. In the series of wall paintings from Pompeii representing dancing maidens, one carries in her hand a branch with leaves and flowers, apparently of the citron tree. A later copy indubitably depicts a citron tree branch. A wall painting in the triclinium of the House of the Cryptoporticus at Pompeii represents a basket of fruit, one of which is a beautiful citron.[54] In the festoons of the House of the Silver Wedding the polymorphism of the lemon-shaped citron is depicted in three distinct forms.[55] This evidence indicates that by the middle of the first century A. D. the citron tree had become acclimatized in central Italy, actually producing flowers and fruit.

When the archaeological evidence and the testimony of agricultural writers are considered together, the net impression is that the citron tree was introduced into Italy about the period of Augustus, but for some little time produced no fruit, serving only as an ornamental. By about the middle of the first century A. D. it was being cultivated and

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[49] 10.76.
[50] 10.10.
[51] 10.7.
[52] *De re rustica* 4.10.11-18.
[53] *Edict of Diocletian* 6.75-76. The quantity is missing, but the price of 24 and 16 denarii is very high in comparison with the figures given for other fruits.
[54] Tolkowsky, *Hesperides,* 87-90 and Plates XVI-XX.
[55] Cf. Domenico Cassella, "La frutta nella pitture pompeiane," *Pompeiana, Raccolta di studi per il secondo centenario degli scavi de Pompeii* (Naples, 1950), 360.

produced fruit in some localities in the warmer parts of Italy, but on a very small scale. Vergil may have seen the tree without recognizing it as the Persian fruit tree. Varro would have known it only as an ornamental plant. Columella would scarcely have accepted it as tree of any commercial importance. Pliny may well have seen citron trees in the vicinity of Pompeii, an area with which he was very familiar, and, like Vergil, failed to identify them for what they were.

Since the Attic Greeks for some little time knew the citron only as a fruit imported from Persia, and since the tradition of Persian origin remained strong even after they found the tree being raised in areas with which they had commercial contacts, such as Palestine, Syria, and Cilicia, it was natural for them to continue to refer to it as the "Persian fruit" or "Median fruit." Vergil also so alludes to it; and Pliny uses similar expressions, but normally only when excerpting earlier Greek sources or when he wishes to make it clear that the Greeks so referred to it. About the middle of the first century A. D., not many years after the citron tree presumably was introduced into Italy, we begin to find such Latin terms for the fruit as *citreum*[56] and *citrium*,[57] with such later variants as *citrum*,[58] *cetreum*,[59] and *cedrium*.[60] The tree was usually called *citrus*.[61]

During the early Empire, therefore, a specific term for citron began to displace former vague references to "Persian" or "Median" fruit; and the source of this term sheds light upon the immediate origin of the tree. Olck[62] reasoned that the Greeks and the Romans for a long time were acquainted only with citron fruit. During the course of their unsuccessful attempts to acclimatize the tree, they came to know it as an ornamental plant with a fragrant, aromatic wood, somewhat like the cedar. The name of the cedar (*cedros*) may then have been extended to the citron tree. Similarly, Tolkowsky argues[63] that a variety of thyine-wood[64] was called *cedrus* or *citrus* by the Romans, from Greek *cedros*. The Carthaginians extracted from this wood an essential oil much used in Italy as a preservative; and the wood itself was very popular in Italy for furniture, especially as a moth preventive. Consequently, just as the Greeks applied the term *cedros* not only to the cedar, but also to a number of other conifers, so the Romans applied *cedrus* or *citrus* to a variety of trees, including the Atlantic cedar and thyine-wood. He infers from Dioscorides[65] that about the beginning of the Christian era the common Greek term for citron was *cedromelon* (cedar apple), that the Romans translated this term into Latin in the form *malus citreum* or merely *citreum*, and that it was this expression which became naturalized in Greek-speaking countries in the form *citrea*. In time, he maintains, they perceived that the citron was not the fruit of the thyine-wood, first in those sections of Italy where the citron tree was naturalized, then in other regions where the Latin tongue predominated; but the confusion was perpetuated in late Latin authors and in the terminology of most European languages. Nevertheless, both Dioscorides and Pamphilus[66] recognized that the immediate source of *citrium* was Latin. Loret[67] points to the key when he comments that the Coptic names for the citron, *ghitre*, *djedjre*, *ḳetri*, and *ḳithri*, certainly go back to an ancient Egyptian name, probably a root *ḳitr-* or

[56] Cloatius in Macrobius *Saturnalia* 3.19.2,3; Oppius *ibid.* 4.5; Scribonius Largus *Compositiones medicamentorum* 158; Pliny *Naturalis historia* 15.110; 17.64; 23.-105; Gargilius Martialis *De medicina* 45; Auctor *De virutibus herbarum* 71; Palladius *De re rustica* 4.10.15; 8.3.2; cf. *Institiones* 109; *Corpus Glossariorum Latinorum* 3: 26.22.

[57] Apicius *De re coquinaria* 1.21; 3.75; 4.175; *Edict of Diocletian* 6.75; Dioscorides *De materia medica* 1.115.5 W.

[58] Pamphilius in Athenaeus *Deipnosophistae* 3.85.c; Cassius Felix *De medicina* 81; Plinius Valerianus *De re medica* 5.2,31; Eugenius of Toledo *Carmina* 65; *Corp. Gloss. Lat.* 3: 264.47; 422.9; 477.41; 538.42.

[59] *Corp. Gloss. Lat.* 3: 358.75.

[60] *Idem* 3: 609.19.

[61] Pliny *Nat. hist.* 13.103; 15.28; Martial *Epigr.* 13.37; Apicius *De re coq.* 1.4; Palladius *De re rust.* 4.10.11; 11.15; *Instit.* 109; Anthimus *De observatione ciborum* 169, 170, 171; Sevius, notes on Vergil *Georgics* 2.126, 127, 130; *Corp. Gloss. Lat.* 3: 544.59. The form *cetros* appears in a hand of the ninth century in *Corp. Gloss. Lat.* 3: 537.36 and *cedrus* in hands of the tenth and eleventh centuries *ibid.* 3: 562.69; 609.19. Note Tuscan *cedro* and *cedrato*, Ligurian *sedru* and *sedratu* (Genoa), Piedmont *sitron*, Lombard *cedro* and *sedro*, Emilian *zeder* (Modena, Reggio), and *sedar* (Piacenza), and Sicilian *citre* (Otto A. J. Penzig, *Flora popolare italiana* [*Genoa*, 1924] 1: 124).

[62] Olck, *Realencyclopädie*, 2617.20 ff.

[63] Tolkowsky, *Hesperides*, 77-79; 81-83.

[64] *Callitris quadrivalvis* Vent. (*Thuia articulata* Vahl).

[65] *De materia medica* 1.115.5 W.

[66] In Athenaeus *Deipnosophistae* 3.85.c.

[67] Loret, "Le Cedratier," 238; cf. Loret, *La flore pharaonique*, 102. Cf. also W. Muss-Arnolt, "Semitic Words in Greek and Latin," *Transactions of the American Philological Association*, 23: 112 (1892).

cedr-, and regards Latin *citrium* as a loan word from Egypt, implying an extension of citron culture to Egypt with subsequent introduction from that land into Italy.

As already observed, there is scant evidence of early acclimatization of the citron in Egypt. Tolkowsky avers that it probably was not acclimatized there until after Alexander's campaigns, when it was introduced by Greek military settlers. In reaching this conclusion, Tolkowsky was heavily nifluenced by his conviction that the Greeks were the primary transmitters of citron culture and that the Jews took on this role only after the substitution of the citron for the cedar cone in ritual in 136 B. C. But the evidence is clear that the Jews had long used the citron in ritual, and a large Jewish colony developed at Alexandria. It would be entirely natural for citron culture to be developed in the vicinity of Alexandria by members of this colony. Tolkowsky may, accordingly, be right in respect to time, but wrong on the method of transmission. There is evidence in Athenaeus[68] that the citron was well naturalized in Egypt at least as early as the second century A. D.; and a chiseled silver dish found at Boscoreale represents the goddess Attis, personifying the city of Alexandria, holding various fruits, probably ones commonly raised, among them cirtons, indicating that the citron was under common cultivation there in the first century A. D.[69]

The picture now begins to clarify. About the middle of the first century B. C. a new and highly developed horticultural science arose in Italy, especially in the central portion. The annexation of Egypt in 30 B. C., with the resulting exodus of scholars, artists, artisans, and gardeners to Rome, along with traders in Oriental products, sharply stimulated horticulture and increased the demand for exotic Oriental products. It is reasonable to suppose that in the era of Augustus citron trees were introduced by Alexandrian gardeners and became known by the Alexandrian name. This new term was soon adopted by Greek writers in the form *citrion*, but was accepted by them as a Latin word. Galen in the second century A. D. reported[70] that citron fruit was no longer being called "Median fruit" (*Medicon melon*), but universally *citrion;* but in another work,[71] Galen complained that the *citrion* was still being called "Median fruit" by some writers. Athenaeus[72] in the same period was forced to infer from Theophrastus' description of the "Median fruit" that he meant the citron. He uses only *citrion* himself, and this is the only term found in the later Greek authors.[73] It is accordingly clear that the Greeks adopted *citrion* from the Romans and that it became by the second century A. D. the regular Greek term for the citron. As for *cedromelon*, which Dioscorides[74] reported as a name for the fruit, this is only a compound of the Latin loan word with the Greek term for fruit, a perfectly normal formation, which later assumed the form *citromelon*.[75]

The linguistic evidence, thus, not only tends to confirm conclusions based on archaeological and textual evidence, but points specifically to Lower Egypt as the region from which the Romans obtained the citron tree. In addition, it suggests that while the Romans were successful in acclimatizing the tree, the Greeks either tried and were unsuccessful or did not make the attempt; for the term the Romans acquired from Egypt was adopted by the Greeks and in time wholly supplanted their native term.

The lemon, *Citrus limon* [L.] Burm., and the lime, *Citrus aurantifolia* Swingle, are close relatives of the citron; and this obscures the history of their westward migration. There was, in fact, a tendency in India to apply the same name to all three even before the migration began.[76] Gallesio[77] maintained that orange and lemon trees were unknown to the Romans and could be native only in a country beyond the limits of Roman commercial ex-

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[68] E.g., *Deipnosophistae* 3.84.d. Cf. Tolkowsky, *Hesperides*, 66-67.

[69] Tolkowsky, *Hesperides*, Plate XII.

[70] *Opera* XII, 77 Kühn.

[71] *De alimentorum facultatibus* 2.37.1 (p. 303.11 Helmreich).

[72] *Deipnosophistae* 3.83.c.

[73] E. g., Alexander Trallianus *saepe* (but *citron* in 2: 175, 251 Puschm.); Anon. *De alim.* in Ideler, *Phys. et med. gr. min.* 2: 260.13, 24; 266.12; Simeon Seth *Opera* 15.16 ff. Langk.

[74] *De materia medica* 1.115.5 W.

[75] Cf. *Geoponica* 10.76.7.

[76] The citron and the lemon are called *jambila* in a Sanskrit text dated before 800 B.C.; and in another text assumed to be ca. 100 A.D., but which may be several centuries older, the lemon and the lime are called *jambira* (cf. Tolkowsky, *Hesperides*, 23).

[77] Gallesio, *Traité du citrus*, 239–240; cf. also 243, 293.

pansion, that they could have been cultivated in that period only in remotest parts of India or in regions beyond the Ganges. All subsequent scholars prior to Tolkowsky maintained that the lemon and the lime were unknown in all Mediterranean lands until the tenth century A.D., when the Arabs supposedly brought the first trees from India.[78] Tolkowsky, however, adduces strong evidence that both fruits were known to the Romans; but both his evidence and argument require closer scrutiny.

The disintegration of Alexander's empire left the Seleucids in control of the land routes from India to Egypt via the peninsula of Sinai.[79] The Ptolemies, accordingly, in cooperation with sea captains and merchants in southern Arabia, built up the coastal sea route to India. The Romans, too, relied upon the sea route to India for, when they annexed Egypt, the Parthians blocked the land routes.[80] A direct route across the Indian Ocean to southern India by utilizing the monsoons may or may not have been known before the Augustan period; but there is almost incontestable evidence that it was being fully exploited during his time, and this sharply increased the volume of imports from India.[81] How active this trade was can be judged from the fact that 120 Orient-bound ships left a single port (Myos Hormos) annually. Thus, the Roman contact with India in this period was direct and extensive.

The time element in shipping products from India to Italy prohibited importing fresh citrus fruits or introducing citrus trees directly from India into Italy. But the direct voyage from southern Hindustan to Arabia required only forty days under favorable conditions and was normally made during the east monsoon in December and January, precisely when lemons and limes were ripe. It is, therefore, entirely possible that the Arabians carried home with them both lemons and limes, and perhaps attempted to raise trees, either from seeds or from seedlings transported in pots.

With the expansion of trade and the improvement of communications, especially after establishment of the *Pax Romana* in the Red Sea and along the trade routes from Akabah to Gaza and from Berenice to the Nile, lemon and lime trees logically would have been introduced into Palestine and Lower Egypt. From these areas shipment of the fruit to Italy was relatively simple, and acquaintance with the fruit would lead normally to attempts to acclimatize the trees.

Gallesio[82] was the first modern scholar to point out that in southern Europe during the Middle Ages the lemon was regarded as a variety of the citron and that the generic name *citrus* was applied to both. Similar confusion is found in Jewish and Arabic writers of the same period, and this has persisted to some extent into the modern period.[83] It is reasonable to suppose that similar confusion existed in ancient times, the lack of a specific name obscuring the presence of the lemon and the lime in Italy and other Mediterranean lands. But there is no account in classical sources under the name of the citron which can be plausibly construed as a reference to either lemon or lime.[84] In a Sanskrit text dated before 600 B. C. citron and lemon are called *jambila;* in one assumed to be about 100 A. D., but possibly several centuries older, lemon and lime are called *jambira;* and in one of about the fourth century A. D. lemon

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[78] Cf., e.g., de Candolle, *Origin of Cultivated Plants,* 178–179; Hehn, *Kulturpflanzen,* 445, 452; Engler, *ibid.,* 455; Otto Schrader, *Reallexikon der indogermanischen Altertumskunde,* (2d ed., Berlin, 1917-28), 2: 703; Ludwig Reinhardt, *Kulturgeschichte der Nutzpflanzen* (Munich, 1911), pt. 1, 236, 245, 253; Loret, "Le cedratier," 242–246; Targioni-Tozzetti, *Cenni storici,* 158; Aloi, *Gli agrumi,* 2; George Watt, *The Commercial Products of India* (London, 1908), 319; Rafael Font de Mora, *El naranja,* 10; Coit, *Citrus Fruits,* 40–41; Immanuel Löw, *Die Flora der Juden* (Vienna & Leipzig, 1926-34), 3: 296; Hume, *Citrus Fruits,* 49, 152; Webber and Batchelor, *The Citrus Industry,* 6, 14.

[79] Cf. R. Ghirshman, *Iran* (Suffolk, 1955), 237–238.

[80] Cf. F. J. Teggart, *Rome and China* (Berkeley: University of California Press, 1939), 145.

[81] Cf. Mortimer Wheeler, *Rome beyond the Imperial Frontiers* (London: Bell, 1954), 152–157. Opposing views are expressed by E. H. Warmington, *The Commerce between the Roman Empire and India* (Cambridge, 1928), and W. W. Tarn, *The Greeks in Bactria and India* (Cambridge, 1951).

[82] Gallesio, *Traité du citrus,* 258.

[83] Cf. Tolkowsky, *Hesperides,* 104.

[84] Tolkowsky (*ibid.,* 106) concludes on the basis of evidence in Talmudic sources that when Vergil (*Georg.* 2.126–127) speaks of a "citron of bitter juice and lingering taste," which he calls *felicia mala,* i.e., the apple of Arabia Felix, and when Pliny (*Nat. hist.* 13.103) similarly mentions "citron" trees bearing a sour fruit, the references are either to the lemon or to the sour lime, grown in Palestine before the third century B.C. But the first passage positively cannot be so interpreted, since Vergil speaks of the fruit as Median and calls it *felix* only because of its unusual medicinal virtues; and the comment of Pliny closely parallels statements of other ancient authorities regarding the citron.

and lime are called *danta-satha*.[85] None of these terms appears in any classical source.

But lemons are often depicted in Roman art, and limes occasionally. A mosaic floor from a second century Roman villa at Carthage represents branches from citron and lemon trees, the latter with fruit of the almost spherical variety depicted some 1,500 years later by the Spanish painter Luis de Menendez. The National Museum at Naples has two frescoes from Pompeii in which ripe lemons are depicted.[86] A lime is depicted in a house at Pompeii.[87] A lemon of the type *romano* is represented in Mosaic No. 9994 in the National Museum at Naples. In festoons 8525 and 8526 in the same museum two lemons are shown very similar to the type *femminello ovale commune* or *di Sorrento*, two lemons of the type *lunario*, and two lemons similar to the type *Citrus Volkamericano*.[88] A mosaic in the Museo della Terme at Rome, probably from a Roman villa near Tusculum constructed about 100 A.D., and probably concerned with India, represents a basket of fruit, comprising an apple, a lemon, an orange, a citron, another orange, and a lime, nestling in a bed of orange leaves. In the Mausoleum of Constantia, near Rome, constructed about 330 A. D., one section of the ceiling includes conspicuous representations of citrons, oranges, and lemons, all of them still attached to freshly cut branches covered with green leaves.[89]

The Roman frescoes and mosaics in which lemons and limes are represented tend in their subject matter to reflect the Hellenistic predilection for mythological and idyllic art, but in technique they exemplify the realism originated by Ludius. This is especially true in the treatment of plants; in some instances lemons are depicted with such accuracy that the precise variety can be identified. It is too much to believe that the fruits in these works of art were copied from Alexandrian paintings. They must have been drawn from life and represent fruit trees actually growing in the localities in which the frescoes and mosaics were made. This establishes almost incontestably that fruitful lemon and lime trees were being raised in central Italy in the first century A. D.

With regard to the sour orange, *Citrus aurantium* L., and the sweet orange, *Citrus sinensis* Osbeck, it has generally been assumed that they were unknown to the Greeks and the Romans in the early Christian era.[90] As has been pointed out before, the center of wild and cultivated oranges in ancient times lay in China, Japan, and Cochin-China rather than in India.[91] There is no certain mention of oranges in Sanskrit literature until about the beginning of the Christian era;[92] and it is reasonable to suppose that the cultivation of oranges was introduced into India from China, very likely via the Malay Archipelago and the Straits of Malacca,[93] for the Malay Archipelago enjoyed close trade relations with both China and southern India.

The Arabian trade with India, subsequently taken over by the Romans, was largely concentrated in the southern part of the peninsula, the very region where presumably oranges had recently been introduced. As in the case of lemons and limes, the length of the sea voyage from India to Italy precluded importing fresh oranges or orange trees directly. Again, the shorter voyage from India to Arabia, normally made at the time when oranges were ripe, made it possible for Arabians to carry oranges home with them and to attempt to raise the trees. It is also reasonable to assume that orange culture was introduced into Lower Egypt about the beginning of the Christian era, that shipments of the fruit were made from this area to central Italy, and that attempts were made to raise orange trees there.

Bits of archaeological evidence indicate that oranges were known in central Italy as early as the first century A. D. A mosaic from

[85] Tolkowsky, *Hesperides*, 23.
[86] *Idem*, 100 and Plates XXIII, XXV.
[87] House No. 5 of Reg. I, Ins. VII, at Pompeii; cf. Casella, "La frutta," 358, 361.
[88] *Idem*, 360.
[89] Tolkowsky, *Hesperides*, 102, 108.
[90] See sources cited in note 78. Cf. also C. Schweinfurth, "Aegyptens auswärtige Beziehungen hinsichtlich der Culturgewächse," *Verhandlungen der Berliner Gesellschaft für Anthropologie, Ethnologie und Urgeschichte*, Jahrg. 1891 (1891), 688; Hilderic Friend, "Horticulture in Relation to Commerce," *Gardener's Chronicle*, 90: 234 (1931); H. J. Webber, "When Did the Sweet Orange Reach Europe?" *California Citrograph*, 23: 451 and 489; Webber and Batchelor, *The Citrus Industry*, 6, 10, 14.
[91] Cf. note 4.
[92] Tolkowsky, *Hesperides*, 23. In a Sanskirt text assumed to be ca. 100 A.D., but perhaps several centuries older, the orange, both sour and sweet, is called *naranga* and *airavata*.
[93] Cf. *idem*, 26–27.

Pompeii in the National Museum at Naples (No. 9992) has a remarkably faithful representation of an orange affected with a type of excrescence familiar to all orange-growers, together with stem and leaves and even a young orange.[94] On the wall of the triclinium of the House of the Ara Maxima at Pompeii (Ins. 15, no. 16) there is depicted a spherical orange, bright orange-yellow in color, with the characteristic little involucre.[95] Reference has already been made to a mosaic in the Museo della Terme at Rome which represents an apple, a lemon, a citron, two oranges, and a lime in a bed of orange leaves, as well as the oranges depicted in the ceiling fresco of the Mausoleum of Constantia near Rome.

As in the case of lemons and limes, so too with oranges, there has been a tendency in both the Middle Age and modern times to apply the name of the citron without discrimination. It is, therefore, also possible that classical knowledge of the orange is obscured by lack of a specific name. Tolkowsky[96] held that certain references to grafting citron twigs on pomegranate or mulberry stock in Roman agricultural writers alluded to oranges, but this conclusion is unjustified since such grafting is impossible.[97] Perhaps Hesychius' definition of *citrion* in the fourth century A. D. as an Indian fruit refers to the orange. On the other hand, the tradition of Persian origin had become obscured by his time, and possibly India was recognized as the home of the citron. One of two Sanskrit terms for the orange was *naranga*. This became Persian *naranj*, adopted by the Arabs and carried to the Mediterranean region, where it gave rise to Spanish *naranja*, Portuguese *laranja*, Italian *naranzia*, *narancia*, and *arancio*, Byzantine *nerantzion*, neo-Latin *arangium*, *arantium*, and *aurantium*, French *orange*, *arange*, and *airange*, and English *orange*. One lemma on Nicander of Colophon of uncertain date, but possibly before the third century A. D., identifies his *Medon* as the *nerantzion*, i.e., the orange.[98]

The evidence of Roman mosaics and frescoes, accordingly, receives scant support from literary sources. But for precisely the same reason as in the case of lemons and limes, they almost certainly attest orange culture in central Italy in the early Christian era. Since logically the immediate antecedent of this orange culture would have been Lower Egypt, more especially the area around Alexandria, one would expect to find some indication of Egyptian culture; but only dubious evidence exists.[99]

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[94] Cf. *idem*, 100–101. Tolkowsky has a full color reproduction of a portion of this mosaic (Plate XXVI), but his interpretation of the objects portrayed is definitely faulty.

[95] Casella, "La frutta," 358, 361.

[96] Tolkowsky, *Hesperides*, 105.

[97] These references are found in Florentinus (*Geoponica* 10.7), Diophanes *idem* 10.76), and Palladius (*De re rustica* 4.10). The grafting technique mentioned by Florentinus might by itself be taken to apply to the orange, but statements elsewhere in the chapter make this assumption impossible. Diophanes lived in the period of Cicero, and there was no orange culture in Italy at that time. The same condition applies to Palladius as to Florentinus.

[98] This unidentified and undated commentator on Nicander *Alexipharmaca* 533 says: "*Medon*, i.e., the *Medicon melon*, i.e., the *nerantzion*." *Nerantzion* was the Byzantine and is today the Greek name for the sour orange. All known scholiasts on Nicander wrote before the third century A.D. The commentator in question may also have written before that date, but the particular lemma is probably an addition by a much later editor. Cf. Tolkowsky, *Hesperides*, 103.

[99] C. Kunth (*Annales des Sciences Naturelles*, 9: 421 [1826]) identified a specimen of fruit in the Passalacqua collection as *Citrus aurantium* var. *fructu amaro;* but Franz Unger (*Sitzungsberichte, math.-naturw. Classe. k. Akad. der Wissenschaft., Wien.* 28: 130 [1859]) rejected this identification as incorrect, and A. Braun (*Zeitschrift für Ethnologie*, 9: 299–300 [1877]) referred this specimen to the sycamore.

Book Reviews

Readings in the History of American Agriculture. Edited by WAYNE D. RASMUSSEN. (Urbana: University of Illinois Press, 1960, xi, 340 pp., $6.50.)

Thirty-five years ago L. B. Schmidt and E. D. Ross brought out a volume of *Readings in the Economic History of American Agriculture*, a classic work familiar to students of American agricultural history. In their collection Schmidt and Ross brought together excerpts from such scholars as Charles R. Van Hise, Philip A. Bruce, Clark Wissler, Charles M. Andrews, Frederick Jackson Turner, Ulrich B. Phillips, Benjamin H. Hibbard, Percy W. Bidwell, Emory R. Johnson, Theodore C. Pease, Frederic L. Paxson and many others. The emphasis was on secondary works and the selected readings were divided into four categories, ranging from the early "Colonial Foundations" down to World War I "Reorganization and Readjustment." Probably nearly every student of American history has at one time or another dipped into this book of readings. But as time has gone on a widening gap has necessarily appeared and in addition the readings represented only secondary works.

The present book of readings chosen by the agricultural historian of the United States Department of Agriculture and secretary of this Society does not seek to supplant the earlier work of Schmidt and Ross. Rather, it complements their selections. Instead of presenting extracts from secondary works, the editor has chosen passages from primary sources, some of which have never been in print or else can be found only in obscure or rare publications. Thus, the 17th century English agricultural writer, Gervase Markham, in an extract from his *Farewell to Husbandry* reports on "What a Farm Worker Should Accomplish during a Day and a Month." Thomas Hariot describes "Food and Farming in Aboriginal Virginia" in a passage from his *Narrative of the First English Plantation of Virginia*. Eli Whitney in a letter to his father, September 11, 1793, describes the cotton gin. Henry Clay writes of his importation of English purebred cattle. Jethro Wood applies for a patent for his plow, and John Deere advertises his great innovation. Edmund Ruffin, the great agricultural editor and champion of states rights, presents his famous "Essay on Calcareous Manures." A. B. Lyman reports on the introduction of the hardy Grimm alfalfa, and Oliver Hudson Kelley recalls how he organized the Grange. Stephen M. Babcock tells how his test can be used to determine the butterfat content of milk and ends with a generous announcement that, "The test is not patented." Hardy W. Campbell outlines his method of dry farming. Theodore Roosevelt's Country Life Commission reports on the deficiencies of farm life, and Senator Arthur Capper defines the membership and purpose of the Farm Bloc in Congress. George N. Peek and Hugh S. Johnson provide the basis for the McNary-Haugen farm bills, and Henry A. Wallace writes of the wonders of hybrid corn. Hugh H. Bennett raises an alarm call and presents the menace of soil erosion. In the last selection Sir John Boyd Orr sets forth his proposals for a World Food Board.

The great range of selections, divided into eight sections, reflects not only the richness, vitality, and variety of the American agricultural scene, but also portrays the evolution of American agriculture from the first precarious foothold on a new and isolated continent, through the problems of technical improvements and innovations, to the present difficulties of world adjustments. The American agricultural story, one is not surprised to find, mirrors the national drama, with periods of great triumphs broken by moments of doubt and confusion.

The editor's familiarity with American agricultural history is evident not only in the soundness of his selections but also in the introductory material which prefaces each passage. This introductory material presents in compact form biographical information about the writers and also an adequate background for the chosen passage. Read by themselves, the introductions make a good survey of American agricultural history. We are in debt to the editor for sharing with us these selections from his wide reading in the history of American agriculture.

Besides the passages selected from primary sources, the editor has provided a "Chronol-

ogy of American Agricultural History" that covers the period 1493-1958 and lists 168 items ranging from the introduction of Old World products by Columbus in 1493, through John Bartram's establishment of a botanical garden in Philadelphia in 1731, Elkanah Watson's agricultural fair in 1810, John Appleby's twine-knotter in 1878, the organization of the Farmers Union in 1902, the invasion of the European corn-borer in 1917, and the appearance of a new wilt-resistant tomato in 1958. A selected list of readings in American agricultural history covers a variety of subjects, from "Background" to "Transportation," and will be a useful aid to teachers and students. Several dozen photographs illustrate various phases of the agricultural story. A generous index and particularly legible type make the book easy to use. This selection of readings is destined to become a classic. It will be an indispensable reference work for the student of American agricultural history.

Rodney C. Loehr
University of Minnesota

Conservation and the Gospel of Efficiency: The Progressive Conservation Movement, 1890-1920. By SAMUEL P. HAYS. *Harvard Historical Monographs,* XL. (Cambridge: Harvard University Press, 1959, 297 pp., $6.00.)

The conservation movement, according to Professor Hays, was essentially a scientific movement that called for "rational planning to promote efficient development and use of all natural resources." It was led primarily by scientists who were more concerned with questions of resource use than those of resource ownership. Its chief historical significance can be understood from the vantage point of applied science rather than that of democratic protest. This view of the conservation movement differs sharply from that of Roy Robbins, who saw the movement as a popular reaction to the post-Civil War influence of corporate monopoly and exploitation in public land use. It challenges the recent view of J. Leonard Bates that the movement was guided strongly by a "fighting, democratic faith."

Hays supports his view with an impressive array of data gathered from manuscript and archival collections, scholarly works, and popular periodical literature. He covers concisely yet critically well known facets of public land problems and the forest conservation crusade and makes perhaps his most notable contribution in an account and appraisal of the fight for multipurpose development of waterways. He shows that the era of Theodore Roosevelt was a period in which an increasing quest for efficiency was evident in industrial management, public administration, and other areas of American life and contends that this interest motivated conservationists to undertake the application of scientific principles to resource management. He evaluates the role of well known conservationists such as Pinchot, Newell, Maxwell, McGee, Newlands, and Garfield and describes important contributions made to the conservation cause by less prominent men such as Frederick V. Coville, grazing expert; Marshall O. Leighton, hydrographer; and George Woodruff, government attorney. The *cause célèbre* of the conservation movement, the Ballinger-Pinchot controversy, which Hays maintains only obscured issues in the movement, is dealt with briefly.

Considerable space, however, is given to conflicts between competing resource users and between politicians and resource technicians. Conservationists were an extremely heterogeneous group. The role and motives of many leaders within the group have not yet been thoroughly assessed by scholars. If the leaders were indeed primarily concerned with resource use rather than resource ownership, there is already considerable evidence to show that they were not concerned merely with efficient resource use and management as ends in themselves. On the contrary they are shown to have demanded efficient development and utilization of the nation's resources for the benefit of more and more Americans instead of the partial exploitation of them for the benefit of a few. This demand stressing efficient use for democratic ends has persisted through the years and strongly influences present considerations of the proper use of natural resources.

Harold T. Pinkett
National Archives

The Separation of the Farm Bureau and the Extension Service. By WILLIAM J. BLOCK. (Urbana: University of Illinois Press, 1960, 304 pp., $4.00 paperbound; $5.00 clothbound.)

From 1919 until recently the Farm Bureau and the Extension Service were Siamese twins. Today, only in Illinois, Vermont, and Arizona has surgical separation been prevented. Naturally, one wonders what happened.

William J. Block presents the fascinating and complicated history of the separation. In so doing, he also pictures the furious and successful campaigns of the Farm Bureau to prevent any other federal-state agency from creating a new farm organization in the same way that the Extension Service created the Farm Bureau. He covers the Farm drive against the Farm Security Administration, the Soil Conservation Service, the AAA, and the BAE's land use planning program.

From the start, the Grange and the Farmers Union attacked the Bureau-Extension tie-up. They claimed, with some evidence, that county agents were using public funds to help one farm organization, the Bureau. The campaign was waged in Congress, in the Department of Agriculture, and in state legislatures. The Farm Bureau fought back successfully. The decisive force which culminated in separation began when the extension services of the various state colleges began to question the advisability of continued association. H. C. Ramsower, Director of Extension in Ohio, started the movement in 1944. Other state colleges fell into line slowly. Association with the Bureau began to seem politically risky when the Bureau launched business ventures, causing its relationship with Extension to draw fire from feed and fertilizer dealers. Educationally, there were hazards, since in many states the Bureau had less than one half of the farmers on its rolls. Many farmers whom Extension wanted to reach could not be reached by a program limited to Farm Bureau members.

Meanwhile, the Bureau, too, felt increasingly lukewarm toward Extension. The Bureau became increasingly uneasy about charges of improper use of public funds and public officials. A formal separation, with a county council running extension work, would neutralize these charges; moreover, Bureau tacticians felt that the county extension council would largely be made of Bureau members anyway and that some cooperation between the Bureau and Extension would continue. The mutual estrangement led ultimately to separation.

Mr. Block has presented the complicated record of this period of agricultural history with skill and detailed documentation. Those who lived through the period will find the book absorbing. So will those who are interested in the processes by which different pressures work to make changes in policy.

Donald R. Murphy
Wallaces Farmer

The Trumpet Soundeth: William Jennings Bryan and His Democracy, 1896-1912. By Paul W. Glad (Lincoln: University of Nebraska Press, 1960, 242 pp., $4.75.)

In this brief but stimulating volume, Professor Glad of Coe College has given us a book which in the years ahead will occupy a prominent and well-deserved place on reading lists for courses in American history. As the subtitle suggests, *The Trumpet Soundeth* is a study of William Jennings Bryan and the political party which he dominated for sixteen years following his nomination at Chicago in 1896. At that tumultuous conclave, the Democrats repudiated the only president they had elected in forty years and bestowed the mantle of leadership upon the youthful lawyer from Nebraska. Grover Cleveland and his hard money adherents were outraged, and the conservatives of both parties damned the Boy Orator in terms unrivaled for their viciousness. Bryan, however, displayed such a popularity among the voters that his party twice again turned to him for leadership in presidential campaigns. In 1904, when the conservatives succeeded in wrestling control from Bryan and nominated the colorless Alton B. Parker, the consequences were disastrous for them, and the Great Commoner returned with enhanced power to his high place in the party. The result of Bryan's long titular leadership was the transformation

of the Democratic party; in effect, he bridged the gap between the Democracy of Cleveland and the Democracy of Wilson.

Bryan, as Glad clearly shows, was a true son of the Middle Border. Born and educated in Illinois, he displayed throughout his political career the attitudes and ideals of the agrarian society which produced him. He shared the prejudices of his constituents, but he also knew their hopes and aspirations. Consequently, he came to be more than a provincial politican supporting panaceas born of desperation; he became instead the embodiment and leading voice of rural progressivism. Free silver may have been, as Henry Damarest Lloyd said, the "cow-bird of the reform movement" in 1896, but Bryan recognized the basic inequalities in American life and he labored earnestly to correct the obvious social injustices. Professor Glad makes his most valuable contribution by evaluating Bryan in light of the concepts and ideals common during his years of greatness rather than those of the 1920's when the Nebraskan was ridiculed by those who had once followed him.

In preparation of this study, the author has examined the pertinent manuscript collections and he has delved into a wide variety of printed sources. The volume is attractively illustrated and adequately indexed and the style of writing is marked by commendable clarity. This reviewer will hope that Professor Glad will continue the high level of scholarship which he has displayed in *The Trumpet Soundeth.*

Roy V. Scott
Mississippi State University

Cockle Park Farm, An Account of the Cockle Park Exptriment Station from 1896-1956, by H. Cecil Pawson. (London: Oxford University Press, 1960, xvi, 261 pp., plates, 35s.)

Although some famous beginnings were made much earlier, most agricultural experiment stations in Great Britain were founded towards the end of the nineteenth century. The station at Cockle Park, in Northumberland, came into being in the 1890's as did several similar institutions in England. Its history of six decades is treated in this book with all the detail an outside reader may want. There is considerable biographical information about the leaders of the institution, and quite detailed accounts of the experiments carried out and their results.

Apart from its value as local history, a monograph like this one has its further use among the sources for those who want to study the history of agricultural research and education in their broader features.

The Cockle Park Station has carried out a wide array of experiments in nearly all fields of British agriculture, but its best results are those relating to grassland production. This is by no mere chance. Northumberland is largely grassland country as are other significant parts of Britain. The Cockle Park Station can take credit for three major innovations in this field: The introduction of basic slag as topdressing of grassland; the introduction of carefully selected grass-and-clover mixtures for seeding of permanent grassland following upon periodic plowing; and the wider use of wild white clover as a component in grazing vegetation.

This concentration of innovations or new findings on grassland production should make the station's work fruitful in England. Two centuries ago, England spearheaded new developments in European agriculture by the systematic use of organized crop rotations and mixed farming. How outdated this principle is in modern England was pointed out already in the 1930's, in the Astor Report. English farming is obviously on a crossroad where the path leading to less arable and more grazing land seems to lead to most comparative advantage.

The book is adequately illustrated with plates, charts, and tables, and is handsomely printed.

F. Dovring
University of Illinois

The Winegrowers of France and the Government Since 1875. By Charles K. Warner. (New York: Columbia University Press, 1960, xvi, 303 pp.)

Americans scarcely need to be reminded that nothing is closer to the life of France than her wine industry. French school children are still taught that new varieties of

grapevines, as well as the proverbial spices, were introduced into *la belle patrie* after the Crusades. If Professor Warner makes clear that viticulture is no longer literally "the hen that lays the golden eggs" of the French economy, as claimed, with some justice, by Jules Guyot in 1868, his scholarly study shows clearly the importance of the wine industry in French national economics for the last century.

Beginning with the catastrophic plague of the tiny green aphid Phylloxera, which almost annihilated viticulture in the whole of Europe in the last quarter of the nineteenth century, the author gives a dramatic account of the acute economic and political difficulties in the whole South of France between 1904 and 1907. These were occasioned by an almost too successful recovery from biological crisis in the vineyards; an even more economic crisis followed in the market place.

With the lessons to be derived from this first severe winegrowers' depression in modern times, Professor Warner gets into his real stride. His careful comparative analysis of the root causes of these recurrent and critically important crises in a key French industry, right down to the contemporary problems of the European Common Market, is perhaps the most valuable contribution of his carefully integrated volume. In a few chapters the historian might ask for a fuller political background (as in Eugene Golob's Méline Tariff), to make more comprehensible the extraordinarily favorable legislation on behalf of the viticultural lobby throughout the Third and Fourth Republics. But the general reader will follow with much interest the founding and development of the *Confédération Générale des Vignerons du Midi* (the powerful "C.G.V.," here compared to the well-known Comité des Forges), the struggles between the sugar beet producers of the North and the wine producers of the South to find an outlet for surplus alcohol, the anti-alcohol campaign in both World Wars and constantly in peacetime, and the involvement of many eminent French statesmen, such as Clemenceau, Tardieu, and Mendès-France, in the political problems of the wine industry.

The Winegrowers of France is essentially a thoroughly documented study in economics, with thirty-eight formal statistical tables, some forty pages of informative footnotes, map of major winegrowing regions, inclusive bibliography and practical index. No student of modern France can afford to neglect it, for wine is front page news to the French. The most important headline on the front page of *Le Figaro* (Paris) for July 23, 1960, dealt with the jealously guarded tax exemption of *les bouilleurs de cru*. That afternoon the dignified and authoritative *Le Monde* (Paris) carried the full story of French parliament's "progressive suppression of the privileges" of these three million peasant distillers of "home brew." For the background and solution to problems like these turn to this admirable book.

Dwight W. Morrow, Jr.
Temple University

A Guide to the Study of the United States of America. By the Library of Congress staff. (Washington, D. C.: Government Printing Office, 1960, xv, 1,193 pp., $7.00.)

This truly monumental bibliographical guide to "representative books reflecting the development of American life and thought" was compiled by Donald H. Mugridge, Blanche P. McCrum, and other members of the Library of Congress Staff under the direction of Roy P. Basler, Director of the Reference Department. Its nearly 1,200 large, double-column pages (including one hundred pages of index) succinctly describe approximately 10,000 books. The thorough cross-indexing and cross-referencing are an amazing achievement in itself. The descriptions convey not only a clear idea of the content and central theme of each book, but include *vitae* concerning the author and explanatory comments, e.g.:

Item no. 3147 (Turner, Frederick Jackson. The Frontier in American History) explains, aptly, the significance of Turner in American history, and cites major bibliographical works, including several compilations by Everett E. Edwards. Item no. 4164 (Webb, Walter Prescott. The Great Plains) among other information relates that "in 1940 the Social Science Research Council devoted its *Bulletin* 46 to an assault upon Professor Webb's conclusions by Fred A. Shannon, which has had small influence."

Item no. 5828 (Phillips, Ulrich Bonnell. Life and Labor in the Old South) explains that "as a student of history and a young instructor, the Georgia-born Phillips (1877-1934) was struck with the idea that the interpretation of the South by historians had been distorted. . . . by the time he wrote this book had already spent years of research among plantation records, diaries, account books and correspondence, some of which he found in the garrets of Southern houses. . . . He reviews the Southern scene from the 'big house' and relates sympathetically the instances of friction that weakened the socio-economic bonds holding planters and slaves together. Awarded a $2,500 prize offered by Little, Brown and Company in 1928 for the best manuscript on American history. . . ."

Item no. 5831 (Saloutos, Theodore, and John D. Hicks. Agricultural Discontent in the Middle West, 1900-1939) begins by describing the work as "an enlargement of Dr. Saloutos' doctoral dissertation, to which his teacher, Dr. Hicks, has contributed chapters 1, 2, and 4," and then presents a compact résumé of the theme and contents.

The foregoing fragments offer a meager sampling of this enormous volume, which is unquestionably one of the best book bargains this reviewer has seen in a coon's age. As a convenient critical guide for the study of American history and literature this work fulfills a useful purpose indeed, and will surely be found within easy reach in every scholar's bookcase.

THE FORDSON TRACTOR

The Ford Motor Co., . . . in 1917 started production of the Fordson. It also was of unit-frame construction but of cast iron instead of boiler-plate steel. The tractor was light for its power and relatively low in price. This unit-frame type was practicable. Most manufacturers soon adopted the idea.

The Fordson development came at an opportune time—the year the United States became involved in the First World War. Boatloads of horses were being shipped abroad. Labor was becoming scarce. Materials were restricted. Power became more vital than ever. The manufacture of more than 34 thousand Fordsons in 1918 and 100 thousand by 1925 (25 and 75 percent, respectively, of the tractors produced by all companies) helped greatly to meet difficulties caused by the war. After 1925, with returning normalcy and the increasing interest in the general-purpose tractor, production of the Fordson dropped, and its manufacture was discontinued in this country in 1928.

E. M. Dieffenbach and R. B Gray, "The Development of the Tractor," *Power to Produce* (USDA: The Yearbook of Agriculture, 1960), pp. 32-33.

THE AGE OF ELECTRICITY

California and New York had the first electrified farms. Many farms there and in the New England States had central-station electric service by 1935. The electrification of farms over the Nation was slow, however—zero in 1886, 1.6 percent in 1919, and 9.5 percent in 1929.

Many farmers who realized the value of electricity but were beyond the reach of the power system in towns and along electrified railways built their own electric systems. Power came from gasoline-driven generators, homemade water-wheel generators, windmill-driven generators, and battery systems.

John H. Rixse, Jr., "Electricity Comes to Farms," *Power to Produce* (USDA: Yearbook of Agriculture, 1960), pp. 69-70.

Book Briefs

Herbs, Hoecakes and Husbandry: The Daybook of a Planter of the Old South. Edited by WEYMOUTH T. JORDAN. (Tallahassee: Florida State University Studies Number Thirty-four, 1960, 137 pp., $3.00.)

In this, his most recent offering, Professor Jordan presents a unique document which he unearthed in Alabama. Neither a diary, a scrapbook, nor precisely a daybook, the material consists of assorted information of a supposedly practical nature, e.g., household hints, medical lore for man and beast, and sundry advice on plant and animal husbandry, which was compiled by a planter and his family over a period of years from 1802 to about 1860.

If considered solely as a priceless bit of Americana this handsomely bound and printed volume would justify its existence. For the historian, however, it is significant primarily because of the informative, interesting and thought-provoking light that it throws on a neglected aspect of American history, namely, the actual everyday living conditions of rural people in the Old South. The editor's delightful introductory chapter entitled "A Southerner and His Daybook" nicely performs its intended function, that of orienting the reader.

Finnish Immigrants in America, 1880-1920. By A. WILLIAM HOGLUND. (Madison: The University of Wisconsin Press, 1960, iv, 213 pp., $5.00.)

In this remarkable little book, packed with a wealth of down-to-earth detail drawn from original sources, Professor Hoglund, himself of Finnish descent, analyzes the experience of Finnish immigrants in adjusting to their New World environment. Their heritage from Old World rural villages was reshaped by new and strange conditions of life and labor in America, specifically in the remote Upper Peninsula of Michigan and the extreme northern portions of Wisconsin and Minnesota. In his story of how these poor and for the most part unschooled sons and daughters of Finland, crowded out of their homeland by rural unemployment, built a new life for themselves, Professor Hoglund probes the innermost depths. He portrays the proverbial "melting pot" with vivid reality and achieves the kind of rapport with his subjects that embraces equally their virtues and failings. For the general reader, this study, prepared originally with the advice of Professor Merle Curti of the University of Wisconsin, offers important insights into the wider history of immigration to America.

The Minnesota Community: Country and Town in Transition. By LOWRY NELSON. (Minneapolis: The University of Minnesota Press, 1960, vii, 175 pp., $4.25.)

The focus of this book is Minnesota's rural people; its emphasis is social change. This volume is an outgrowth of the lifetime experience of the author, a well-known rural sociologist whose investigations over the years reveal the problems and attitudes of rural folk and long-term trends in local government, church membership, and the like.

The author denies that the "family farm" is outmoded or that the trend toward larger farms is necessarily "progress" (pp. 9-10). He denies also the allegation that the cream of each younger generation is being skimmed off by the cities (p. 31). He finds that the incidence of farm tenancy has declined, that the number of part-time farmers has increased, and that perhaps less than half of Minnesotans are of Scandinavian stock (p. 40)! Rural families, particularly those of German and Polish descent, tend to limit their sons' education, and more farm *girls* than farm *boys* attend high school (p. 90). Finally, a separate chapter is given to the cut over forested region, "our rural problem area."

Turner and Beard: American Historical Writing Reconsidered. By LEE BENSON. (Glencoe, Illinois: The Free Press, 1960, ix, 241 pp., $5.00.)

Readers of *Agricultural History* will remember Lee Benson's two significant articles on the "Turner Thesis" which appeared in

the October, 1950, and April, 1951, issues. These articles, which analyze the historical background of Turner's frontier essay and link Turner's concepts to the theories of Achille Loria, an Italian economist, are re printed here. The balance of the book is devoted to "A Critique of Beard and his Critics." Professor Benson challenges recent criticism leveled against Beard in Howard K. Beale, ed., *Charles A. Beard: An Appraisal* (Lexington, 1954), Robert E. Brown, *Charles Beard and the Constitution* (Princeton, 1956), and Forrest McDonald, *We the People: The Economic Origin of the Constitution* (Chicago, 1958). It is Benson's contention that inadequate design of proof, faulty methods, lack of data, and misunderstanding of what Beard really said weaken these criticisms, and that the critics tend to succumb to the same pitfalls as Beard. Benson tries to show that some of Beard's claims are potentially verifiable and that some are not; and suggests the methods and type of data by which they might be tested.

Futures Trading Seminar, Vol. I: *History and Development,* Educational Advisory Committee of the Chicago Board of Trade. (Madison: Mimir Publishers, Inc., 1960, xiii, 283 pp., no price listed.)

The reader of these verbatim proceedings of a lively seminar cannot fail to gain fresh insights into the nature and functions of futures trading operations, and to ponder, as the participants did, the future role of futures markets in a changing agricultural economy. The analysis is of a high order, marked by clashes of opinion as knowledgeable men attempted to identify and weigh the forces influencing futures markets (e.g., assembly, wholesale and processing cooperatives, contract farming, and government purchases) and to determine how futures markets might increase their contribution to more effective marketing of farm commodities, especially in relation to the two important functions of risk-taking and pricing.

Professor Henry H. Bakken (University of Wisconsin) presented an excellent synopsis of the historical evolution of market organization through clearly defined stages including spot, contract and futures markets. Thus, the grain dealers who, in 1848, formed the Chicago Board of Trade, "were among the first to adopt a technique which had been evolved by the caravan merchants in the Champagne fair six centuries earlier" (p. 13). While history confirms the inherent value of an idea, it also demonstrates that this "highest type marketing institution man has thus far formulated" is vulnerable to outside forces and abuses within. "From 1884 to 1953 at least 300 bills were introduced in Congress designed to regulate, investigate, delimit, prohibit, or otherwise obstruct trading in futures" (p. 19).

Other major papers were given by Dr. Roger W. Gray, Food Research Institute, Stanford University; Professor T. A. Hieronymus, agricultural economist, University of Illinois; and Drs. Allen B. Paul and William T. Wesson of the marketing research division of the U. S. Department of Agriculture. Among the numerous competent discussants was Professor John D. Black (Harvard), who pointed out that futures trading is a "social invention," and that, therefore, a conscious attempt should be made to apply research and analysis to make futures trading a more dependable and useful instrument for fulfilling its essential role in a well-developed free-enterprise exchange economy.

Notes and Comments

MARJORIE FLEMING WARNER

Marjorie Fleming Warner, Charter Member of the Society and a life member since 1944, died August 17, 1960, at the age of 89. As a member of the staff of the U. S. Department of Agriculture Library, Miss Warner compiled and published bibliographies on plant genetics, gardening, and related subjects, and wrote historical articles in the field of horticulture. Two of her articles were published in *Agricultural History* for January 1947 and April 1952. Both of these articles have been widely cited, particularly by European historians.

Miss Warner took an active part in the affairs of the Society and supported it generously. She will be remembered with affection, both personally and for her contributions to history and the Society.

NEW LIST OF DOCTORAL DISSERTATIONS

American Historical Association announces that the next edition of the *List of Doctoral Dissertations in History in Progress or Completed at Colleges and Universities in the United States* is in preparation. Departmental chairmen, advisors, and candidates should note that the deadline for registration of topics is April 1, 1961. The titles should be sent to Dr. William Lloyd Fox, in care of the American Historical Association, 400 A St., Southeast, Wash. 3, D. C.

MEMBERSHIP COMMITTEE

President Fite has announced that H. C. M. Case, professor emeritus at the University of Illinois and past president of the Society, has accepted the chairmanship of the Membership Committee. A few years ago, Professor Case conducted the most successful membership drive in the Society's history. President Fite is asking the entire membership to aid Professor Case in the new drive.

JOINT MEMBERSHIP WITH BRITISH AGRICULTURAL SOCIETY

The Secretary-Treasurer has made arrangements with the British Agricultural Society for joint membership in the two organizations. Joint membership, including subscription to *Agricultural History* and *Agricultural History Review*, will be $8.00.

Activities of Members

James C. Bonner's article on "Journal of a Mission to Georgia in 1827," was published in the *Georgia Historical Quarterly* for March, 1960.

Gilbert C. Fite's article on "Republican Strategy and the Farm Vote in the Presidential Campaign of 1896," was published in the *American Historical Review* for July, 1960.

Earl W. Hayter's article on "Livestock Doctors, 1850-1890: The Development of Veterinary Surgery," appeared in the *Wisconsin Magazine of History*, Spring, 1960.

Albert V. House's article on "Internal Conflict in Key States in the Democratic Convention of 1880," was published in *Pennsylvania History* for April, 1960.

John H. Moore received a Guggenheim fellowship for 1960-61. His article on "Claiborne's 'Journalism in Mississippi': A Fragment from the Unpublished Second Volume of His Mississippi History," appeared in the *Journal of Mississippi History* for April, 1960.

E. Louise Peffer's article on "The Argentine Cattle Industry under Peron," was published in *Food Research Institute Studies* for May, 1960.

Wayne D. Rasmussen's article on the "History of America's Farm Exports," was published in two parts in *Foreign Agriculture* for June and July, 1960.

John T. Schlebecker's article on "The World Metropolis and the History of American Agriculture," was published in the *Journal of Economic History* for June, 1960.

Roy V. Scott's "Pioneering in Agricultural Education: Oren C. Gregg and Farmers' Institutes," was published in *Minnesota History* for March, 1960.

Richard B. Sheridan's article on "The British Credit Crisis of 1772 and the American Colonies," was published in *Minnesota History* for March, 1960. for June, 1960.

James H. Shideler is the new Chairman of the Department of History, University of California at Davis.

Charles W. Turner edited the "Reuben Knox Letters, 1849-1851," which were published in *North Carolina Historical Review* for April, 1960.

John C. White, who served as a student assistant with the history staff of the U. S. Department of Agriculture during the summer of 1960, is doing graduate work at Duke University.

The Authors

JOHN L. GIGNILLIAT is a graduate student in American history, University of Wisconsin, Madison, Wisconsin.

PAUL W. GATES is professor of history at Cornell University. His most recent book, *The Farmer's Age, Agriculture, 1815-1860,* is a welcome addition to the Rinehart series in American agriculture.

A. WILLIAM HOGLUND is assistant professor of history at Muskingum College, New Concord, Ohio. His book, *Finnish Immigrants in America, 1880-1920,* an outgrowth of his doctoral dissertation at the University of Wisconsin, appeared last September.

ALFRED C. ANDREWS, professor in the Classics Department, University of Miami, Coral Gables, Florida, is author of numerous scholarly articles and is an acknowledged authority in the field of classical botany.

NEW BARNS FOR OLD

The farmer who built a gambrel-roofed barn in northern Missouri in 1931 may not have belonged to our modern era. It was a fine example of a general barn. On one side he built individual stalls for eight horses; on the other, three box stalls. A shed of hollow tile in one wing had homemade stanchions for milk cows. A shed at the back accommodated the sheep. He skimmed the milk, hauled cream to town once a week, and fed the skim milk to the hogs and chickens. He bought a hand-powered cream separator in 1935 and considered it a major improvement. It was useful only a year and a half, however, because roads were improved, and farmers then could market whole milk. He certainly lived in the period of expanding markets; maybe his heart was in one era and his business in another.

He was one of those who tempered the speed with which the self-sufficiency of the pioneering era and farming as a way of life moved toward industrialized farming. The depression after 1929 strengthened the belief that the farm is a secure place to live and that farming differs from industry because it is a way of life that involves the whole family.

Something can be said for such a belief, but we might also argue that the family before the Industrial Revolution that maintained a cobbler's shop in one side of their house had a family way of life. Farming and consequently farm buildings will continue to be influenced by two basic facts—that on a farm one can always have something to eat and that farming has been a family unit business. But both are opposed to industrial development of farming. Buildings that serve the old-time family farm rarely are adequate for industrial farming.

Norman C. Teter and Henry Giese, "New Barns for Old," *Power to Produce* (USDA: The Yearbook of Agriculture, 1960), pp. 220-221.